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PATENTS

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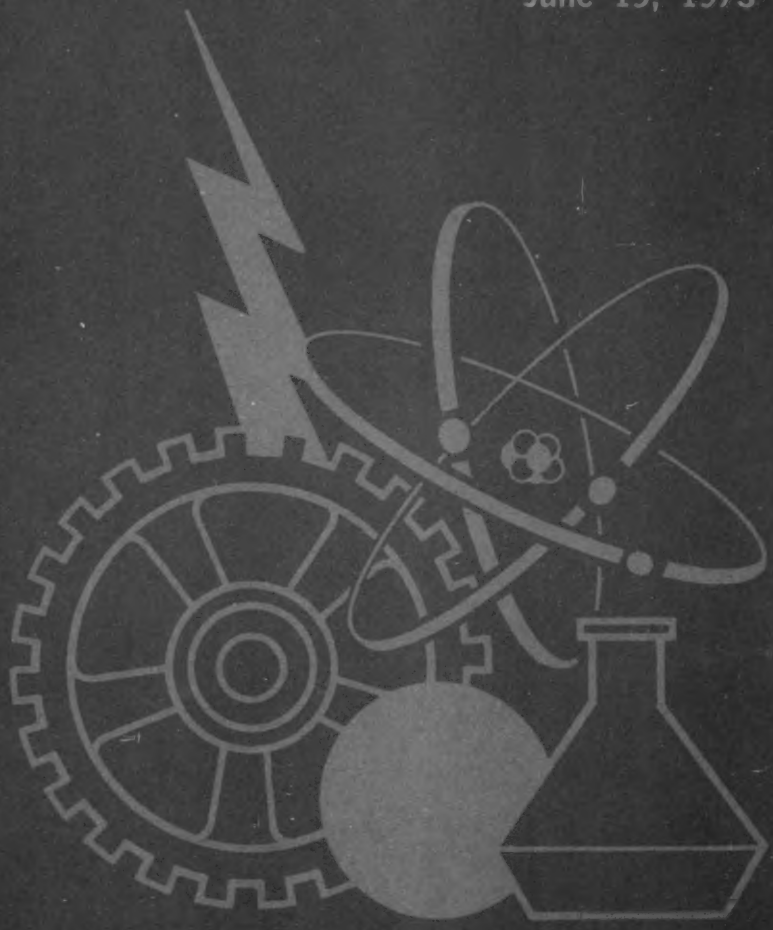

U. S. DEPARTMENT OF COMMERCE

Patent Office

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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

June 19, 1973 Volume 911 Number 3

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PATENT OFFICE NOTICES

Protests to the Grant of a Patent

[37 CFR Part 1]

Notice of Proposed Rule Making

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended Oct. 5, 1971, Public Law 92–132, 85 Stat. 364, the Patent Office proposes to amend title 37 of the Code of Federal Regulations by revising §§ 1.11(b) and 1.291.

All persons are invited to present their views, objections, recommendations, or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C., 20231, on or before Oct. 31, 1973, on which date a hearing will be held at 9:30 a.m. in Room 11C24, Building 3, 2021 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally at the hearing are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person, upon written request, a reasonable time after the closing date for submitting comments.

The underlying purpose of the proposed rule change is to assure that the best art and information relevant to the patentability of an application for patent are brought to the Patent Office's attention. Under present procedures, ex parte examination of patent applications is conducted as thoroughly and in as effective a manner as possible. However, it is noted that a significant number of patents involved in litigation are held invalid because prior art or other information having a bearing on patentability, which was not known to the examiner during the prosecution of the case, is brought to the court's attention.

The proposed rule change is designed to elicit this additional prior art or other information. An applicant would be given the opportunity to open his application to public inspection prior to issuance of a patent. The public would then have the opportunity to bring to the attention of the Office information which bears on the question of patentability of the pending patent application. Presumably, interested and affected members of the public may be aware of relevant prior art which the Office did not find, or might know of other information unavilable to the Office, bearing on the question of patentability. If in the opinion of the Commissioner, consideration of such new evidence would lead to a more complete appraisal of patentability, the Commissioner may reopen prosecution of the application.

It is believed that there are several benefits which this proposed procedure would bring about. First, applicants would benefit from a more meaningful presumption of validity where a patent is issued after appropriate consideration of evidence submitted by the public under this procedure. Second, potential competitors of the applicant would benefit from having the opportunity to call to the attention of the Office information that could either prevent a patent from issuing or lead to claims of more restricted scope. And by use of the proposed procedure such determinations would be helpful in avoiding the more expensive conventional procedure following the issue of the patent, of litigating the questions of validity and scope of such patent on the same grounds at a later date. Finally, the public would benefit from the resultant strengthening of the presumption of validity of patents granted on applications which underwent this procedure and the strengthening of the patent system for its intended purposes.

Paragraph (b) of § 1.11 is proposed to be amended to allow the Patent Office to open the file of a pending patent application to the public in accordance with a written authorization from the applicant as specified in the proposed § 1.291(b).

It is proposed to amend present § 1.291 by incorporating a new paragraph (a) which provides that protests filed by the public to the grant of a patent, including the identity of the protesting party, be made of record in the patent application concerned, if such application is identified by the protesting party. The proposed rule change would also afford the examiner an opportunity to ask the protesting party for submission of additional evidence bearing on the question of patentability. Any such evidence received would be forwarded to the applicant. Under § 1.291(a) the protesting party would not be permitted to inspect the application file.

In paragraphs (b), (c) and (d) of § 1.291, a new procedure is proposed whereby an applicant, whose application for patent has been indicated as being allowable by the examiner (Form PO–327), may within thirty days of such indication authorize the Office to open his application to public inspection. The application would be available for inspection for a period of three months from the time a notice to that effect appeared in the OFFICIAL GAZETTE. The notice would be in the form of a publication of data necessary to identify the application in question and would include a representative illustration of the invention, the most comprehensive claim, and a listing of references cited by the Patent Office. The applicant would be charged a fee of $25.00 to defray the printcost of this notice in the OFFICIAL GAZETTE.

On the basis of such notice, any person would be permitted access to the application in question and could obtain copies of any papers contained therein (see proposed amendment to § 1.11(b)).

If any person, after inspection of an application, is of the opinion that the relevant prior art of record is not complete, he can notify the Commissioner and the applicant in writing, of any grounds, including additional publications or patents, which he believes have a bearing on the patentability of any claim contained in such application, together with an explanation of the relevance of such publications or patents to the allowed claims. He would, in addition or alternatively, have the opportunity to comment on the manner in which the prior art of record was applied and raise any other matter which could affect the patentability of the claimed invention.

All evidence and comments received in this fashion, including the identity of the protesting party, would be made of record in the application after the time period for protest had elapsed. The protesting party would thereafter be privy to all further proceedings in the Patent Office insofar as they relate to the evidence he submitted. If, in the opinion of the Commissioner, such evidence constituted a prima facie showing of non-patentability of the subject matter as claimed, or unenforceability of a patent if granted, prosecution of the application would be reopened.

As a result of any reexamination of the application, the applicant would be permitted to present amended or new claims which would be subject to a determination of patentability by a primary examiner. The protesting party who made evidence of non-patentability available to the Patent Office would be informed of any action taken by the Office and given the opportunity to comment thereon.

In cases involving evidence of prior public use or sale of the invention, the procedure outlined in present § 1.292 would be utilized to provide the person presenting such evidence with an opportunity to be heard.

An adverse determination to the patentability of any claim may, of course, be appealed by the applicant to the Board of Appeals under § 1.191.

Applications considered under the above procedure and ultimately allowed after a decision by the Board of Appeals would not be reconsidered under this proposed procedure. If, after the three-month period from the date of publication, no evidence was received or if in the opinion of the Commissioner the evidence submitted does not bar the granting of a patent on grounds of patentability or enforceability, a notice of allowance (Form POL–85) would be transmitted in due course. This determination would be final and not subject to petition by the protesting party.

The text of the proposed amended sections is as follows:

§ 1.11 *Files open to the public.*

* * * * *

(b) Applications in which the Office has accepted a request filed under § 1.139 or received an authorization under § 1.291 (b), are open to inspection by the general public, and copies may be furnished upon paying the fee therefor.

§ 1.291 *Protests to the grant of a patent.*

(a) The patent statutes do not provide for protests to the grant of a patent as a matter of right on the part of the public. Where protests to the grant of a patent are filed with

the Office, and the protesting party identifies the application, the protest papers will be referred to the examiner having charge of the application. In such case, the protest papers, including the identity of the protesting party, will be placed in the application file and a copy will be forwarded to the applicant. The examiner may request submission of further evidence from the protesting party, and any further evidence adduced will be made of record and also forwarded to the applicant. However, the protesting party will not be permitted to inspect the application file unless the Office has received an authorization under paragraph (b) of this section or § 1.14 (a). Where the protesting party cannot identify the application, the protest will be acknowledged and referred to the examiner having charge of the subject matter involved for his information.

(b) Applications may be voluntarily opened to public inspection. Within thirty days from the mailing date of a notice of allowability from the examiner, an applicant may waive his right to have his pending application for patent kept in confidence (§ 1.14). Such waiver may be accomplished by filing in the Office a written authorization, signed by the applicant and assignee of record or by the attorney or agent of record, to open the complete application to inspection and protest by the general public to the granting thereof, together with a fee of $25.00.

(c) Upon receipt of an authorization under paragraph (b) of this section, the Office shall publish suitable notice of such fact in the OFFICIAL GAZETTE together with a representative illustration of the invention, the most comprehensive claim, and a listing of references cited by the Patent Office. At anytime up to three months thereafter, any person may protest the grant of a patent by filing with the Commissioner and serving the applicant with publications, patents or any other information which might have a bearing on the patentability of any claims contained in the patent application or on the enforceability of any patent issuing on said application; said protest must include a memorandum explaining the relevance of the submitted evidence. All protest papers filed, together with the identity of the real party in interest originating the protest shall be made of record in the application after the time period for protest has elapsed. Examination of the application shall be reopened if, in the opinion of the Commissioner, it appear that any claim thereof may not be patentable or any patent granted on said application would be unenforceable in view of such evidence. In the event that examination is reopened, the protesting party shall be apprised of all further proceedings in the Patent Office insofar as they relate to or are concerned with the evidence submitted by the protesting party, and accorded the opportunity to comment thereon. All further papers received from the protestor will be made of record. If the examination of the application is not reopened, the protesting party shall be so apprised. A decision by the Commissioner not to reopen an application for examination after the close of the protest period, shall be final and not subject to petition by the protesting party. In cases involving evidence of public use or sale of the invention more than one year before the filing of the application, the procedure outlined in § 1.292 shall be followed.

(d) The transmittal of a formal notice of allowance shall be held in abeyance until the patentability of the claimed invention has been determined in light of such evidence. If no protest to patentability is submitted to the Commissioner within the time specified, or if he determines that no further examination is necessary, a notice of allowance shall be transmitted to the applicant, his attorney or his agent in due course. A copy of said notice of allowance will also be forwarded to the protesting party.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Date: May 15, 1973.

Approved:
DR. BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

(Pub. FR 1469, June 4, 1973)

Erratum

All reference to Patent Number 3,727,649 to Edward A. Obuch et al., Hand Tool for Tensioning and Cutting Wire Tie Straps, appearing in the OFFICIAL GAZETTE of April 17, 1973, should be deleted as the application inadvertently issued.

Certificates of Correction for the Week of June 19, 1973

Re. 27,565	3,684,448	3,703,955	3,711,732
D. 225,426	3,684,813	3,704,295	3,711,815
3,471,396	3,685,296	3,704,419	3,712,298
3,485,539	3,685,337	3,704,599	3,712,542
3,520,119	3,686,890	3,705,010	3,712,760
3,552,161	3,687,849	3,705,157	3,712,769
3,558,218	3,688,594	3,705,227	3,712,856
3,564,587	3,688,667	3,705,329	3,712,857
3,588,449	3,689,358	3,705,501	3,712,951
3,589,277	3,689,838	3,705,722	3,712,979
3,595,905	3,690,417	3,705,811	3,713,144
3,608,380	3,690,962	3,705,813	3,713,298
3,614,169	3,691,268	3,705,839	3,713,368
3,614,892	3,692,769	3,706,028	3,713,442
3,624,081	3,693,070	3,706,654	3,713,672
3,624,125	3,693,290	3,706,676	3,713,876
3,626,993	3,693,611	3,706,853	3,714,208
3,627,808	3,694,221	3,706,963	3,714,259
3,642,387	3,694,255	3,707,093	3,714,277
3,645,652	3,694,680	3,707,364	3,714,313
3,646,050	3,695,276	3,707,533	3,714,350
3,647,887	3,695,324	3,707,575	3,714,489
3,649,129	3,695,731	3,707,711	3,714,607
3,651,227	3,695,831	3,708,352	3,715,031
3,657,497	3,696,110	3,708,544	3,715,233
3,659,024	3,697,226	3,708,546	3,715,307
3,665,285	3,697,299	3,708,707	3,715,320
3,672,898	3,697,482	3,708,716	3,715,371
3,673,179	3,697,814	3,708,944	3,715,386
3,676,426	3,699,066	3,708,959	3,715,527
3,677,843	3,699,102	3,709,715	3,715,868
3,679,536	3,700,418	3,710,242	3,716,415
3,679,945	3,701,439	3,710,286	3,716,458
3,681,355	3,701,640	3,710,693	3,716,852
3,681,499	3,702,320	3,710,706	3,717,232
3,682,202	3,702,478	3,710,915	3,717,592
3,683,731	3,702,549	3,710,956	3,717,701
3,683,758	3,702,852	3,711,350	3,717,756
3,683,997	3,703,226	3,711,675	3,732,638
3,684,260	3,703,378	3,711,683	

Disclaimers

3,432,810.—*Humberto R. Cordero*, Endicott, N.Y. ADDRESSING SYSTEM FOR A COMPUTER EMPLOYING A PLURALITY OF LOCAL STORAGE UNITS IN ADDITION TO A MAIN MEMORY. Patent dated Mar. 11, 1969. Disclaimer filed Jan. 22, 1973, by the assignee, *International Business Machines Corporation*.

Hereby enters this disclaimer to claims 1, 2, 3 and 4 of said patent.

3,650,743.—*Robert W. Hallman*, Utica, and *Gary W. Kurtz*, Southfield, Mich. MEHTODS FOR MAKING LITHOGRAPHIC OFFSET PLATES BY MEANS OF ELECTROMAGNETIC RADIATION SENSITIVE ELEMENTS. Patent dated Mar. 21, 1972. Disclaimer filed Jan. 24, 1972, by the assignee, *Teeg Research, Inc.*

Hereby disclaims the portion of the term of the patent subsequent to Jan. 25, 1989.

3,666,363.—*Hiroshi Tanaka, Katsumi Nagamatsu, Giichi Marushima*, and *Shinkichi Takahashi*, Tokyo, Japan. ELECTROPHOTOGRAPHIC PROCESS AND APPARATUS. Patent dated May 30, 1972. Disclaimer filed Feb. 18, 1972, by the assignee, *Canon Kabushiki Kaisha*.

Hereby disclaims the portion of the term of the patent subsequent to Apr. 15, 1986.

3,666,397.—*Keshav V. Datye*, Goregaon-Bombay, India and *Branimir Milicevic*, Riehen, and *Hermann Werdenberg*, Basel, Switzerland. TRANSFER PRINTING WITH FIBRE-REACTIVE DYES. Patent dated May 30, 1972. Disclaimer filed Feb. 3, 1972, by the inventors, the assignee, *Ciba-Geigy AG*, assenting.

Hereby disclaim the portion of the term of the patent subsequent to Jan. 4, 1989.

3,681,064.—*Shu-Hsiung Yeh*, Iowa City, Iowa. PHOTOELECTROPHORETIC IMAGING PROCESS EMPLOYING MULTICOMPONENT ELECTRICALLY PHOTOSENSITIVE PARTICLES. Patent dated Aug. 1, 1972. Disclaimer filed Feb. 18, 1972, by the assignee, *Xerox Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to May 21, 1985.

3,693,945.—*James Donald Brock*, Chattanooga, Tenn. ASPHALT PREPARATION PLANT. Patent dated Sept. 26, 1972. Disclaimer filed June 23, 1972, by the assignee, *CMI Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to Oct. 19, 1988.

3,699,963.—*Alejandro Zaffaroni*, Atherton, Calif. THERAPEUTIC ADHESIVE PATCH. Patent dated Oct. 24, 1972. Disclaimer filed May 5, 1972, by the assignee, *Alza Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to Aug. 10, 1988.

3,719,515.—*Edward R. Degginger*, Convent Station, N.J. FIRE FIGHTING METHOD EMPLOYING SOLUTIONS OF PVA AND ALKALI METAL BORATE. Patent dated Mar. 6, 1973. Disclaimer filed May 24, 1973, by the assignee, *Allied Chemical Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to Nov. 3, 1987.

Patents Available for Licensing or Sale

2,970,783. COMPOSITE WEARING PARTS FOR CRUSHERS AND THE LIKE. A. H. Plyer, 55 E. Monroe, Chicago, Ill., 60603.

3,652,997. CONTROL SYSTEM FOR MULTIPLE SIGNAL CHANNELS. Ralph G. Cromleigh, P.O. Box 751, La Canada, Calif., 91011.

3,664,061. METHOD OF AND APPARATUS FOR THE DEVELOPMENT OF PLANT GROWTH. Holman & Stern, 2401 15th St., NW., Washington, D.C., 20009.

3,675,616. FLAG STORAGE AND DISPLAY DEVICE. George L. McInnis, 291 Brighton St., Belmont, Mass. 02178.

3,680,834. PRY BAR AND NAIL PULLER. Wilbur Holloway, 345 Davis Ave., Mount Ephraim, N.Y., 08059.

3,697,046. COMBINED JACK AND CLAMP, SURE CLAMP. Ferdinand F. Sur, R.R. #3, Effingham, Ill., 62401.

3,698,261. ACCELERATION SELECTOR UNIT FOR AUTOMOBILE ACCELERATORS. J. F. Kinney, P.O. Box 122, Humbolt, Kans., 66748.

3,712,104. APPARATUS FOR CLAMPING WORKPIECES IN DRAW BENCHES OR THE LIKE. Th. Kieserling & Albrecht, Solingen, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,712,688. MODIFICATION MEANS FOR CHANGING WHEEL VEHICLES TO ALL TERRAIN-VEHICLES. Kenneth M. Russell, 5530 Caroline Drive, Helena, Mont., 59601.

3,724,126. TOY HOOP WITH STABLE PLATFORM FOR DECORATIVE DISPLAYS. Alfred C. La Grow, 3615 N. Harvard, Peoria, Ill., 61614.

3,724,760. ADJUSTABLE SHOWER FIXTURE. Earl W. Smith, 716 North A St., Lake Worth, Fla., 33460.

3,729,749. TOILET FACILITY. Charles E. Rosecrans. Correspondence to: Clarence M. Crews, 4706 N. Pacific Highway, Central Point, Oreg., 97501.

General Motors Corporation is prepared to grant non-exclusive licenses under the following 6 patents upon reasonable terms.

Applications for license may be addressed to: The Director, Patent Section, General Motors Building, 3044 W. Grand Blvd., Detroit, Mich., 48202.

3,545,839. DAMPING.

3,546,598. CONTROL CIRCUIT FOR LIMITING OUTPUT PARAMETERS.

3,554,663. COOLED BLADE.

3,560,107. COOLED AIRFOIL.

3,563,669. VARIABLE AREA NOZZLE.

3,565,386. MOUNT FOR A BODY AND COUPLING UNIT THEREFOR.

RCA Corporation offers to grant non-exclusive licenses on reasonable terms and conditions under the following 22 patents.

Inquiries respecting licenses under the following patents should be addressed to: RCA Corporation, Staff Vice President, Domestic Licensing, 1133 Avenue of the Americas, New York, N.Y., 10036.

3,724,734. WEB TRANSPORT.

3,725,065. METHOD FOR MAKING A KINESCOPE COMPRISING A COLOR SELECTION MASK WITH TEMPORARY CORRIDORS.

3,725,577. COMMON BASE AMPLIFIER TERMINATING CIRCUIT FOR HIGH IMPEDANCE DETECTING APPARATUS.

3,725,582. SIMULTANEOUS DIGITAL TRANSMISSION IN BOTH DIRECTIONS OVER ONE LINE.

3,725,801. VOLTAGE DRIVER CIRCUIT.

3,725,817. HIGH POWER LASER SYSTEM.

3,725,822. PHASE SHIFT OSCILLATORS USING INSULATED-GATE FIELD-EFFECT TRANSISTORS.

3,725,831. MAGNETIC BEAM ADJUSTING ARRANGEMENTS.

3,727,072. INPUT CIRCUIT FOR MULTIPLE EMITTER TRANSISTOR.

3,727,080. SWITCHING CIRCUITS.

3,727,116. INTEGRAL THYRISTOR-RECTIFIER DEVICE.

3,727,865. SUSPENSION SYSTEM.

3,728,236. METHOD OF MAKING SEMICONDUCTOR DEVICES MOUNTED ON A HEAT SINK.

3,728,532. CARRY SKIP-AHEAD NETWORK.

3,728,555. SIGNAL TRANSFER SYSTEM FOR PANEL IMAGE SENSOR.

3,728,589. SEMICONDUCTOR ASSEMBLY.

3,728,591. GATE PROTECTIVE DEVICE FOR INSULATED GATE FIELD-EFFECT TRANSISTOR.

3,728,594. ELECTROLUMINESCENT DEVICE COMPRISING A TRANSISTOR METAL OXIDE DOPED WITH A TRIVALENT RARE EARTH ELEMENT.

3,728,682. COMPUTER INPUT-OUTPUT CHAINING SYSTEM.

3,728,686. COMPUTER MEMORY WITH IMPROVED NEXT WORD ACCESSING.

3,728,716. DIGITAL SIGNAL DECODER USING TWO REFERENCE WAVES.

3,729,261. STABILIZED MULTIPASS INTERFEROMETER.

General Electric Company is prepared to grant non-exclusive licenses under the following 50 patents upon reasonable terms to domestic manufacturers.

Applications for licensing under the following patent may be addressed to: Francis K. Richwine, Patent Counsel, Ordnance Systems Dept., General Electric Co., 100 Plastics Ave., Pittsfield, Mass., 01201.

3,292,449. POWER SYSTEM CONTROL.

Applications for license under the following patent may be addressed to: General Electric Company, Transportation Systems Business Division, 2901 E. Lake Road, Erie, Pa., 16501. Attn: Patent Counsel.

3,719,869. THRUST CONTROL FOR LINEAR MOTORS.

Applications for license under the following patent may be addressed to: General Electric Co., Construction Materials Division, 1701 College St., Fort Wayne, Ind., 46804. Attn: Division Patent Counsel.

3,720,155. FRYING APPARATUS WITH REMOTE CONTROL THERMOSTAT.

Applications for license under the following 2 patents may be addressed to: General Electric Co., Division Patent Counsel, Houseware Business Division, 1285 Boston Ave., Bridgeport, Conn., 06602.

3,658,050. ELECTRIC OVEN TOASTER DOOR OPERATING MECHANISM.

3,703,170. ORAL HYGIENE APPARATUS.

Applications for license under the following 3 patents may be addressed to: Division Patent Counsel, Space Division, General Electric Co., P.O. Box 8555, Philadelphia, Pa., 19101.

3,714,431. SOLAR FLARE WARNING DEVICE.

3,711,794. SURGE SUPPRESSION TRANSMISSION MEANS.

3,721,837. TUNNEL DIODE SUPPLY VOLTAGE CONTROL.

Applications for license under the following 4 patents may be addressed to: Division Patent Counsel, Switchgear Equipment Business Div., General Electric Company, 6901 Elmwood Ave., Philadelphia, Pa. 19142.

3,506,061. APPARATUS FOR VACUUM-CASTING A PLURALITY OF METAL PARTS IN A SINGLE MOLD.

3,713,101. THYRISTOR TURN-ON CIRCUIT.

3,718,852. PHASE ANGLE REGULATOR FOR HIGH FREQUENCY INVERTER.

3,725,770. STARTING CIRCUITRY FOR SERIES/PARALLEL COMPENSATED, CURRENT-FED INVERTER.

Applications for license under the following 8 patents may be addressed to: Patent Counsel, LSTG-I & MT Divisions, General Electric Company, 1 River Road, Bldg. #43, Schenectady, N.Y., 12305.

3,677,338. SURFACE CONDENSER.

3,704,762. GAS TURBINE EXHAUST SILENCER AND SUPPORT.

3,705,502. LIQUID COOLED SEAL LUBE COUPLING.

3,709,319. RESONATOR CHAMBER SILENCER FOR GAS TURBINE.

3,710,478. BRUSH REPLACEMENT DEVICE.

3,713,676. PREDEFORMED RABBET JOINT.

3,714,478. GAS COOLED DYNAMOELECTRIC MACHINE.

3,716,598. HARDENABLE EPOXY RESIN COMPOSITIONS.

Applications for license under the following 29 patents may be addressed to: Patent Counsel, General Electric Company, Industrial and Power Capacitor Products Department, John St., Hudson Falls, N.Y., 12839.

2,905,787. OPERATING MECHANISM FOR AN ELECTRIC SWITCH.

2,931,869. ELECTRIC SWITCH.

3,178,622. ELECTRICAL CAPACITOR WITH THERMAL FUSE.

3,219,892. ELECTRIC CAPACITOR COOLING MEANS.

3,299,333. ELECTRICAL CAPACITOR.

3,340,446. ELECTRICAL CAPACITOR.

3,389,311. SEALED CAPACITOR AND METHOD OF SEALING THEREOF.

3,415,098. METHOD OF EXTRUDING CAPACITOR CASES.

3,429,020. PROCESS FOR CONSTRUCTION OF HIGH TEMPERATURE CAPACITOR.

3,447,218. METHOD OF MAKING A CAPACITOR.

3,454,842. CAPACITOR COOLING MEANS.

3,454,848. ELECTRICAL CAPACITOR.

3,463,992. ELECTRICAL CAPACITOR SYSTEMS HAVING LONG-TERM STORAGE CHARACTERISTICS.

3,480,846. CRYOGENIC CAPACITOR.

3,516,132. PROCESS FOR PRODUCING CRYOGENIC CAPACITORS.

3,522,496. COMBINATION CAPACITOR HAVING A POROUS DIELECTRIC STRIP BETWEEN A METALLIZED DIELECTRIC STRIP AND A FOIL STRIP ELECTRODE.

3,522,498. COMBINATION CAPACITOR HAVING A MARGINLESS METALLIZED DIELECTRIC STRIP AND A FOIL ELECTRODE.

3,530,344. ELECTRICAL CAPACITOR.

3,530,561. IMPREGNATED DIELECTRIC SYSTEMS.

3,533,149. PROCESS FOR INCREASING THE DIELECTRIC STRENGTH OF INS. LIQUID.

3,579,061. INDIVIDUAL CURRENT-LIMITING FUSE FOR THE ROLLS OF A MULTIPLE ROLL CAPACITOR.

3,579,062. ELECTRICAL CAPACITOR WITH THERMAL FUSE.

3,622,847. FLAG TAP RETENTION MEANS IN CAPACITORS.

3,656,035. HEAT PIPE COOLED CAPACITOR.

3,665,269. CAPACITOR HAVING A PHOTOPOLYMERIZED DIELECTRIC FILM.

3,691,435. WOUND IMPEDENCE DEVICE.

3,704,390. COMBINED CAPACITOR-INDUCTOR REACTOR DEVICE HAVING TRANSFORMER CHARACTERISTICS.

Re. 27,533. IMPREGNATED DIELECTRIC SYSTEMS.

3,724,043. METHOD OF MAKING A CAPACITOR WITH A PREIMPREGNATED DIELECTRIC.

Erratum

In the OFFICIAL GAZETTE of May 8, 1973, the following patent listed as being available for non-exclusive licensing under reasonable terms to domestic manufacturers by: General Electric Co., Bldg. 43, Rm. 529, 100 Woodlawn Ave., Pittsfield, Mass., 01201, should read as follows:

2,930,841. SEALING ARRANGEMENT FOR ELECTRICAL INSULATING BUSHINGS.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MAY 29, 1973

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	1-27-72
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	4-07-72
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	4-03-72
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	3-01-72
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	2-02-73
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	10-18-72
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	9-05-72
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	7-03-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	2-09-72
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	5-08-72
DESIGNS, GROUP 290—R. L. CAMPBELL, Director. Industrial Arts; Household, Personal and Fine Arts.	7-06-71
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	6-05-72
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus: Plastics Working Apparatus: Plastic Block and Earthenware Apparatus: Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	3-03-72
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	5-23-72
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	3-06-72
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	4-24-72

Expiration of patents: The patents within the range of numbers indicated below expire during June 1973, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,748,388 to 2,752,594, inclusive
Plant Patents..... Numbers 1,481 to 1,491, inclusive

REISSUES

JUNE 19, 1973

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,673

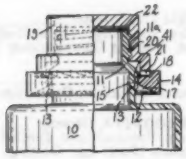
BOTTLE SAFETY CLOSURE

William J. Landen, Cheshire, Conn., assignor to Eyelet Specialty Company, Wallingford, Conn.

Original No. 3,567,057, dated Mar. 2, 1971, Ser. No. 29,400, Apr. 17, 1970. Application for reissue Dec. 29, 1971, Ser. No. 213,759

Int. Cl. B65d *55/02*

U.S. Cl. 215—9 23 Claims



This disclosure relates to a safety cap for a bottle which may contain hazardous material and which is simple for an adult to open, but essentially impossible for a child of limited strength to open.

27,674

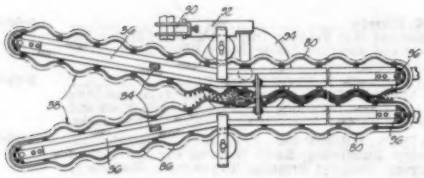
CELERY HARVESTER

Tobias Grether, Camarillo, and Roger M. Donlon, Carpinteria, Calif., assignors to Hi-Gear Harvester Company, Oxnard, Calif.

Original No. 3,587,216, dated June 28, 1971, Ser. No. 755,099, Aug. 26, 1968. Application for reissue June 19, 1972, Ser. No. 264,074

Int. Cl. A01d *45/00*

U.S. Cl. 56—327 R 2 Claims



A celery or other row crop harvester on a vehicle including pick-up conveyor and a crop cutter wherein the conveyor comprises a pair of endless conveyor elements having facing runs, the conveyor elements including flexible belts each of which comprises a series of bulges away from a conveyor chain, the bulges of one belt being disposed longitudinally between the bulges of the other belt; and conveyor chains on supporting beams, the beams carrying guides for the chains and the beams and guides being provided with wear strip means to hold the chains out of contact with the beams and portions of the guides.

27,675

METHOD OF PRINTING AN EMBOSSED PATTERN ALONG THE PERIPHERAL BAND OF A TOROIDAL ARTICLE

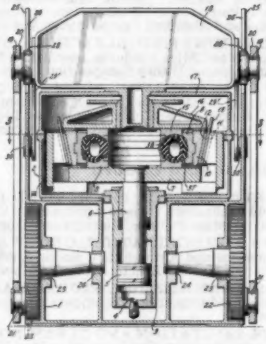
Antonio Pacciarini and Dario Giletta, Milan, Italy, by Industries Pirelli S.p.A., Milan, Italy, assignee

Original No. 3,458,612, dated July 29, 1969, Ser. No. 632,839, Jan. 5, 1967, which is a division of Ser. No. 438,825, Mar. 3, 1965, which is a continuation-in-part of Ser. No. 342,865, Feb. 4, 1964, which in turn is a continuation-in-part of Ser. Nos. 206,088 and 206,089, both June 28, 1962. Application for reissue Mar. 23, 1971, Ser. No. 127,416

Claims priority, application Italy, July 7, 1961, 12,473/61; Feb. 10, 1962, 2,639/62; Aug. 4, 1964, 17,022/64

Int. Cl. B29h *5/02*

U.S. Cl. 264—94 20 Claims



A method of forming an embossed pattern upon the peripheral surface of an article of toroidal cross section comprising the steps of first enclosing all the exterior surfaces of said article except the peripheral surface thereof within rigid surfaces, and subsequently bringing at least one additional rigid surface into contact with said peripheral surface in order to enclose said article completely. The additional rigid surface has a plurality of projections extending therefrom which produce cavities in the peripheral surface thereof in accordance with the embossed pattern.

27,676

SKI MOUNTING APPARATUS FOR SNOWMOBILES

Albin R. Erickson, Roseau, Minn., assignor to Textron Inc., Providence, R.I.

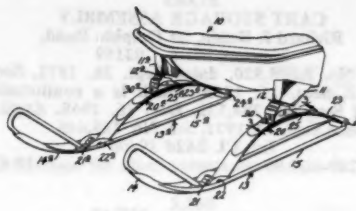
Original No. 3,525,412, dated Aug. 25, 1970, Ser. No. 765,160, Oct. 4, 1968. Application for reissue Dec. 27, 1971, Ser. No. 212,442

Int. Cl. B62d *13/12*; B62n *27/02*

U.S. Cl. 180—5 R 8 Claims

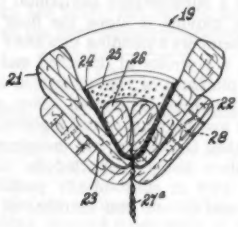
The nose portion of a snowmobile is shown including a pair of spaced steering shafts extending downwardly therefrom for mounting a pair of skis. A mounting is provided for each ski that permits limited pivotal movement of the ski. A flexible rubber snubber member is included

as a part of the ski mounting apparatus to oppose the pivotal movements of the ski and to provide a restoring



force to the ski tending to return the ski to a normal position.

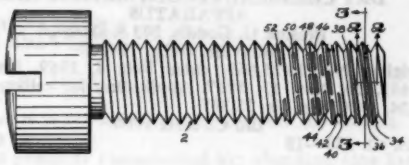
27,677
CATAMENIAL TAMPON
Jacob A. Glassman, 1680 Meridian Ave., Miami Beach, Fla. 33139
Original No. 3,618,605, dated Nov. 9, 1971, Ser. No. 875,903, Nov. 12, 1969, which is a continuation-in-part of Ser. No. 800,983, Feb. 20, 1969. Application for reissue Dec. 22, 1971, Ser. No. 211,128
Int. Cl. A61f *13/20*
U.S. Cl. 128—270 7 Claims



A normally compacted tampon comprised of a laminated structure which embodies the arrangement of highly fluid absorbent layers that allow the menstrual wastes to be initially directed into a central absorbent core to thereby cause the core to expand and insure maximum expansion of the tampon as a whole so as to insure maximum absorption of the menstrual waste without outflow or strike-through, thus maintaining a blood-dry tampon exterior to the very end of its useful life.

27,678
SELF-LOCKING SCREWS
Roger W. Orlomoski, North Brookfield, Mass., assignor to Reed Rolled Thread Die Co., Holden, Mass.
Original No. 3,517,717, dated June 30, 1970, Ser. No. 734,833, May 3, 1968, which is a continuation-in-part of Ser. No. 701,944, Jan. 31, 1968. Application for reissue Jan. 7, 1972, Ser. No. 216,298
Int. Cl. F16b *39/30*
U.S. Cl. 151—22 31 Claims

Self-locking screws wherein the self-locking result is achieved by forming one or more outwardly turned ribs, continuous or discontinuous, in the flank or flanks of one or more turns of the threads over a selected length of the screw. The screw threads and ribs therein may be made by the use of conventional thread rolling dies (flat or circular) in which certain selected threads in one of the dies (preferably the movable die), over a suitable length have been deformed in a particular manner. The deformed die threads must be located at a proper distance from the end of the die so that the self-locking ribs formed in the threads of the screw will not be subsequently wiped out by encounter with the undeformed

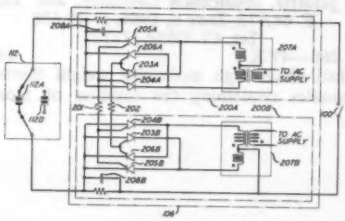


threads in the other die. Preferably, however, the ribs should have the leading and trailing ends thereof faired back into the flank of the screw thread sufficiently to facilitate entry into and removal from the internal thread.

27,679
PROCESS FOR THE MANUFACTURE OF RAPIDLY DISINTEGRATING SOLID DOSAGE UNIT FORMS
Svend A. R. Bentholm, Nuland, and Wilhelm Engelinus Koenen, Oss, Switzerland, assignors to Akzona Incorporated, Asheville, N.C.
Original No. 3,679,794, dated July 25, 1972, Ser. No. 181,588, Sept. 17, 1971, which is a continuation-in-part of Ser. No. 799,061, Feb. 13, 1969. Application for reissue Aug. 22, 1972, Ser. No. 282,869
Int. Cl. A61j *3/10*
U.S. Cl. 424—148 4 Claims

A solid dosage unit tablet or pill which is stable at high relative humidities and capable of distintegrating rapidly in the presence of moisture comprises an active ingredient, conventional tabletting excipients and/or lubricants, and as a distintegrating agent from about 0.3 to about 3 percent by weight of an alkali metal salt of carboxymethylcellulose having a degree of polymerization between about 100 and about 2000, and a degree of substitution between 0.02 and 0.17 at polymerization degree 100, and between 0.02 and 0.57 at polymerization degree 2000.

27,680
POLARITY SENSITIVE VOLTAGE INSERTION CIRCUIT FOR LONG SUBSCRIBER LOOPS
Irving Maxwell McNair, Jr., Colts Neck, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Original No. 3,531,598, dated Sept. 29, 1970, Ser. No. 675,853, Oct. 17, 1967. Application for reissue Apr. 22, 1971, Ser. No. 136,480
Int. Cl. H04q *1/30*
U.S. Cl. 179—16 F 18 Claims



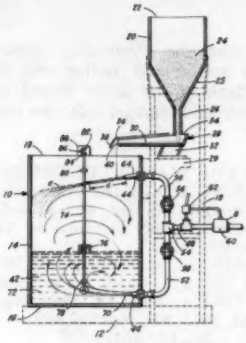
Circuitry is disclosed whereby a voltage in addition to that of the central office battery may be inserted in high resistance telephone lines, particularly those employed in step-by-step central offices which employ reverse battery signaling. The circuitry senses the instantaneous polarity

of the central office battery and inserts the additional voltage in the line with the proper polarity so as to increase the applied potential to the line.

27,681
DRY CHEMICAL FEEDER METHOD AND APPARATUS

Preston G. Gaddis, 203 S. Osage, Bartlesville, Okla. 74003

Original No. 3,425,669, dated Feb. 4, 1969, Ser. No. 682,410, Nov. 13, 1967. Application for reissue Sept. 24, 1970, Ser. No. 75,307
Int. Cl. B01f *5/00*
U.S. Cl. 259—18 22 Claims



A method and means for feeding and mixing a dry chemical of the free flowing type, such as agglomerative polymers with a liquid, to provide a smooth, clear solution which can be proportioned and added directly into a primary or secondary system with accuracy. The chemical is separated into small individual particles which are dropped into a gentle wetting plane whereby each particle is completely wetted. The wetted particle enters the mixing solution and is quickly dissolved into a smooth, clear mixture.

27,682
PROCESS FOR THE PRODUCTION OF THERMOPLASTIC POLYCARBONATES

Hermann Schnell, Krefeld-Uerdingen, and Ludwig Bottenbruch, Kurt Weirauch, Wilhelm Hechelhammer, Hugo Streib, and Gerhard Fritz, Krefeld-Bockum, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

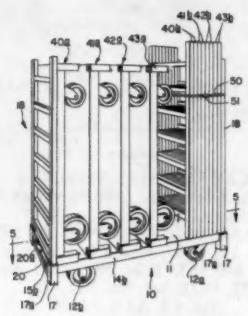
No Drawing. Original No. 3,544,514, dated Dec. 1, 1970, Ser. No. 644,106, June 7, 1967, which is a continuation-in-part of Ser. No. 520,653, Jan. 14, 1966. Application for reissue Sept. 9, 1971, Ser. No. 179,241
Claims priority, application Germany, Jan. 15, 1965, F 44,973; June 8, 1966, F 49,420
Int. Cl. C08g *17/13*
U.S. Cl. 260—47 XA 16 Claims

Branched chain high molecular weight thermoplastic polycarbonates containing the residues of monohydric phenols and polyhydric phenols having more than two hydroxy groups in the molecule.

27,683
CART STORAGE ASSEMBLY

Richard J. Rubin, 39 Dolphin Road, Newton, Mass. 02159

Original No. 3,608,920, dated Sept. 28, 1971, Ser. No. 858,342, Sept. 16, 1969, which is a continuation-in-part of Ser. No. 784,131, Dec. 16, 1968. Application for reissue Sept. 30, 1971, Ser. No. 185,446
Int. Cl. B62d *39/00*
U.S. Cl. 280—33.99 15 Claims



A cart storage assembly including one assembled cart which includes a substantially horizontal platform member, rollers for moving it along the floor and a pair of opposite end members extending upwardly from the platform member, a plurality of detached end members supported on the platform of the assembled cart in substantially parallel relationship to each other and to one end member of the assembled cart and a plurality of platform members detached from their end members, the detached platform members being supported on the platform of the assembled cart in substantially parallel relationship to each other and to one end member of the assembled cart.

27,684
CATHODE MATERIAL FOR SOLID STATE BATTERIES

Demetrios V. Louzos, Rocky River, and Geoffrey W. Mellors, Strongsville, Ohio, assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Original No. 3,655,453, dated Apr. 11, 1972, Ser. No. 55,624, July 16, 1970. Application for reissue Sept. 26, 1972, Ser. No. 292,345
Int. Cl. C01c *3/08*; H01m *13/02, 15/06*
U.S. Cl. 136—121 6 Claims

The reaction product of elemental iodine and cyanides of zinc, cadmium or alkali metal produced by heating equimolar proportions of iodine and the cyanide at a temperature of about 220° C. in a sealed vessel in the absence of water is a good cathode material for solid electrolyte cells.

PLANT PATENTS

GRANTED JUNE 19, 1973

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,360
PEACH TREE
David L. Armstrong, Upland, Calif., assignor to Armstrong Nurseries, Inc., Ontario, Calif.
Filed June 4, 1971, Ser. No. 150,246
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—43 **1 Claim**

A peach tree characterized in its tendency to bear large crops of fruits which ripen quite early, namely, during the latter half of the month of May in Wasco, Calif. The habit of growth is fairly vigorous; the leaves are rather long and distinctly wavy and crinkled. The leaves bear a mixture of globose and reinform glands both on the petiole and on the margin of the leaf just above the petiole. The fruit is yellow-fleshed with little or no red coloration. The flesh, which is of melting texture, adheres closely to the stone until the fruit is fully ripe, and then loosens somewhat. The fruits are about ten percent larger than comparable varieties ripening in the same time interval, even though they are nearly ten percent smaller in diameter than some of the later-ripening varieties.

3,361
CONIFER PLANT
Antonius Petrus Johannes de Beer, Bosscheweg 165, Tilburg, Netherlands
Filed July 1, 1971, Ser. No. 159,071
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—50 **1 Claim**

A new and distinct variety of conifer obtained as a cultivated seeedling, derived from seeds of an unidentified and unpatented *Chamaecyparis lawsoniana* genus.

3,362
AZALEA PLANT
Howard Kerrigan, 25783 Missdon Blvd., Hayward, Calif.
Filed Oct. 18, 1971, Ser. No. 190,240
Int. Cl. A01h *7/00*
U.S. Cl. Plt.—55 **1 Claim**

1. A new and distinct variety of azalea plant of the Belgian Indica type substantially as herein shown and described primarily characterized by: abundant, long lived, dark green foliage; fully double pure white buds and blooms with buds of classical rosebud form, borne on a vigorous, well-branched plant which flowers profusely over a long period and which retains its peak bloom for an exceptionally long period of time, which results in an unusually long marketability period.

3,363
AZALEA PLANT
Howard Kerrigan, 25783 Mission Blvd., Hayward, Calif.
Filed Oct. 18, 1971, Ser. No. 190,237
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—56 **1 Claim**

1. A new and distinct variety of azalea plant, of the Belgian-Indica type substantially as herein shown and described primarily characterized by: a combination of full, double, salmon pink blooms borne in profusion on a vigorous, but well branched plant which blooms much later than any double varieties now in the florist trade.

3,364
AZALEA PLANT
Howard Kerrigan, 25783 Mission Blvd., Hayward, Calif.
Filed Oct. 18, 1971, Ser. No. 190,239
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—56 **1 Claim**

1. A new and distinct variety of azalea plant of the florists' forcing type, substantially as illustrated and described herein and characterized primarily by its unique four inch wide, soft pink star-shaped flowers, which are reliably produced in unusual profusion on a bushy vigorous plant with a long forcing season.

PATENTS

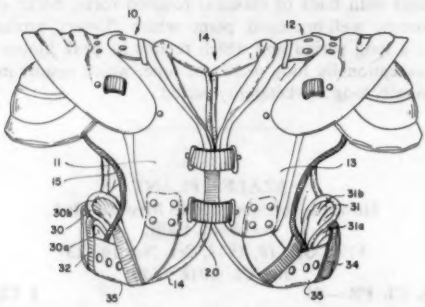
GRANTED JUNE 19, 1973

GENERAL AND MECHANICAL

3,739,397
SHOULDER PAD APPARATUS

John H. Truelove, Vernon, Tex., assignor to Protective Products, Inc., Grand Prairie, Tex.

Filed Jan. 6, 1972, Ser. No. 215,776
Int. Cl. A41d *13/00*
U.S. Cl. 2—2 5 Claims

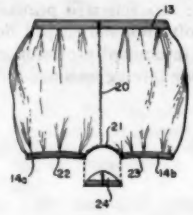


Disclosed is a shoulder pad apparatus comprised of opposed U-shaped members adapted to be worn over the shoulder and attached to form a protective pad for the wearer's shoulders and upper chest and back. The ends of the U-shaped members are interconnected by an adjustable bridge which supports a pad for protecting the wearer's sides and ribs.

3,739,398
PANTY-TYPE GARMENT AND PROCESS OF MAKING SUCH GARMENT

Louis Sarmiento, Hasbrouck Heights, N.J., assignor to International Stretch Products, Inc., New York, N.Y.

Continuation of Ser. No. 10,770, Feb. 12, 1970, abandoned.
This application Jan. 5, 1972, Ser. No. 215,633
Int. Cl. A41b *9/04*
U.S. Cl. 2—224 R 3 Claims

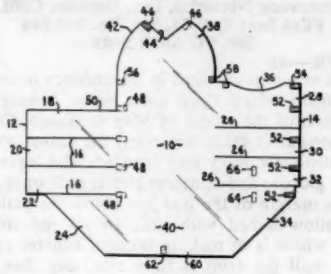


The invention is directed to a panty-type garment, (for example, a panty or panty girdle) which is constructed of a single section of warp knit fabric joined along two seams to form a completed garment. The fabric is knitted, advantageously on Raschel equipment, to provide integral elastic areas lengthwise of the fabric web, usually at the edges but also in other areas where desired (and possibly throughout for panty girdle constructions). A section of such fabric is cut from the web and sewed together at its end edges to provide a tubular garment pre-form with elastic portions at the top and bottom. A crotch seam is placed in the lower portion of the garment, dividing the lower area into two separate, elastically encircled leg portions. The invention enables extraordinary economies to be realized in the manufacture of panty-type garments.

3,739,399
NEONATAL WRAP

John A. Sheahon, 7037 Lakeshore Drive, Raytown, Mo.

Filed Apr. 14, 1972, Ser. No. 244,072
Int. Cl. A41d *3/00*
U.S. Cl. 2—69.5 9 Claims



A wrap particularly adapted to keep a newborn baby warm until such time that his thermoregulatory mechanism gains stability. The wrap comprises a specially shaped and cut sheet of flexible plastic material which is nonabsorbent, transparent, thermally insulating, and suffocation proof. A series of flaps on each side of the sheet fold over the front of the baby as he lies supine on the central area thereof. Opposing flaps are offset and overlap so that air gaps are not created by slits in the sheet that form the flaps on each side. A closed pocket is formed for receiving the feet, and a hood is provided for the head. Any of the flaps, pocket or hood may be selectively folded back or opened for access without exposing other parts of the baby's body, in order to permit medical examination, surgical procedures, or facilitate the changing of diapers.

3,739,400
WORK GLOVES

William S. Colehower, Center Square, Pa., assignor to Jomac, Inc., Warrington, Pa.

Filed Mar. 20, 1972, Ser. No. 236,430
Int. Cl. A41d *19/00*
U.S. Cl. 2—161 R 3 Claims

A pair of work gloves in which each glove of the pair is reversible so as to permit its being worn on either the right hand or the left hand. The glove is fabricated from a pair of blanks sewn together along their periphery to form the glove.

The glove blanks are fabricated from a knitted terry cloth fabric and are assembled so that when the glove is everted to place the seams on the inside, the smooth surfaces of the base fabric are on the interior of the glove and the terry pile surfaces are on the exterior of the glove. A knitted cuff is joined to the blanks around the wrist opening and a reinforcing path is cemented to the pile surface of the completed glove in the crotch between the thumb stall and the index finger stall of the glove. The reinforcing patch is likewise knitted terry cloth with the smooth surface inwardly and the pile surface outwardly. The patch is generally oval and is cut from the knitted material so that the minor axis of the oval is substantially parallel to the machine direction of the knitted fabric and in a similar manner the blanks making the body of the glove are cut so that the finger stalls are substantially parallel to the machine direction of the fabric so that when the components are assembled the body blanks and the reinforcing patch are assembled with their wales parallel to one another.

3,739,401

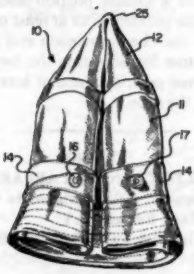
COLLAPSIBLE HAT WITH RETAINING MEANS

Joseph Fekete, 501 N. 17th St., Richmond, Va.

Filed June 21, 1971, Ser. No. 154,876

Int. Cl. A42b 1/20

U.S. Cl. 2—175 **8 Claims**



This is a roll up hat in which provision is made on the hat itself by means of snap fastener elements to hold the hat in its rolled up condition and so that it can be stored in a small space. Cooperating snap fastener elements are respectively provided upon opposite sides of the hat and upon the band. The hat is collapsed along the forward and rearward edges and one of the snap fastener elements is located on one side of the hat adjacent to the rear edge and the other snap fastener element is located on the other side of the hat intermediate the front and rear edge. To secure the hat when it is rolled, the sides of the hat are collapsed upon one another and the end of the hat bearing the respective cooperative fastener elements are rolled from opposite directions until the fastener elements are aligned with one another so as to be joined. The snap fastener elements are then readily joined together and as a result the hat is kept rolled from the opposite directions and will take up little space when stored.

3,739,402

BICUSPID FASCIA LATA VALVE

Denton A. Cooley; Domingo S. Liotta, both of Houston, Tex., and Paul Kahn, San Francisco, Calif., assignors to Cutter Laboratories, Inc., Berkeley, Calif.

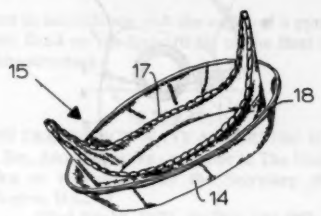
Filed Oct. 15, 1970, Ser. No. 81,064

Int. Cl. A61f 1/22

U.S. Cl. 3—1 **12 Claims**

A graft-support for homograft and heterograft tissue valve implantation comprising a ring base, two struts extending from one side of the ring base and generally parallel to its axis, and a fabric layer covering the entire surface of the ring and struts. The fabric layer has a thickened portion at the apex of each strut, a second thickened portion along the top edge of the ring and a third thickened portion extending circumferentially of the ring. These thickened portions provide means for suturing the graft-support to the valve tissue and to the host heart, respectively. In one very advantageous embodiment, the ring is generally oblong in shape having a long diameter and a short diameter and the struts are disposed opposite to each other, one at each end of the oblong ring, i.e., at each end of the long diameter thereof or on a line parallel thereto.

In effecting the transplantation, animal tissue, such as fascia lata derived from the patient, is wrapped around the upstanding struts and joined at the ends by suturing to form a closed



ring of tissue, and forming also two cusps thereof supported by the struts. Each cusp is then sutured at its base to the covering at the top surface of the ring and along the sides of the struts, and a pledget of the fabric or suture is affixed around the top of the strut, the fabric thereover and the tissue to ensure coaptation of the cusps. The tissue, especially fascia lata from the patient, can also be extended to cover the side of the third thickened portion, or sewing ring, which is exposed to the ventricle so that, when the valve is emplaced, the entire ventricular surface is covered with autologous tissue. The device is then placed in the mitral valve position with struts extending into the ventricle and the host heart is sutured to the peripheral thickened flange, i.e., the third thickened portion.

3,739,403

PROSTHETIC JOINT HAVING A TISSUE INGROWTH PREVENTIVE CAPSULE

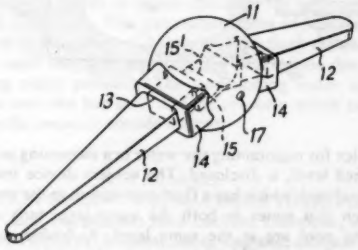
Frederick Villeneuve Nicolle, 35 Ossington St., London, England

Filed Oct. 4, 1971, Ser. No. 186,144

Claims priority, application Great Britain, Oct. 9, 1970, 48,206/70

Int. Cl. A61f 1/24

U.S. Cl. 3—1 **4 Claims**



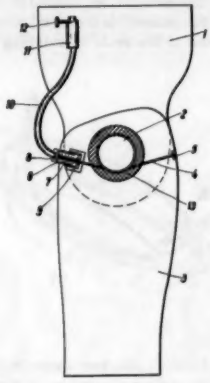
A prosthetic joint comprises two relatively rigid intramedullary arms interconnected by an integral hinge portion to allow articulation of the arms. The hinge portion is located within a capsule of relatively resilient and deformable material which protects the hinge portion from ingrowing body tissues.

3,739,404

BRAKED JOINT FOR PROSTHESES AND ORTHOSES

Franz Gelbenegger, Hamburg-Volksdorf, Germany, assignor to IPOS Kommanditgesellschaft, Luneburg, Germany

Filed Nov. 29, 1971, Ser. No. 202,978
Claims priority, application Germany, Jan. 5, 1971, P 21 00 261.9
Int. Cl. A61f 1/04, 1/08
U.S. Cl. 3—27 3 Claims



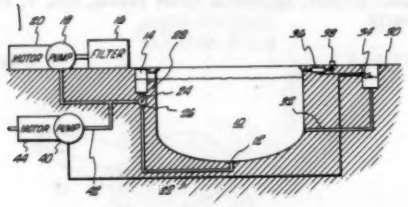
A braked joint for artificial limbs of prostheses and orthoses comprising a shaft rigidly mounted on one of the limb members and a brake cable wrapped around the shaft and mounted with its ends at the other of the limb members in an adjustable spring bias arrangement allowing to selectively adjust any desired motion resistance against pivotal movement of the limb members.

3,739,405

WATER LEVEL MAINTENANCE DEVICE FOR SWIMMING POOLS

Clinton R. Schmidt, 611 N. Geneva St., Glendale, Calif.

Filed Feb. 7, 1972, Ser. No. 223,861
Int. Cl. E04h 3/16, 3/18
U.S. Cl. 4—172.15 13 Claims



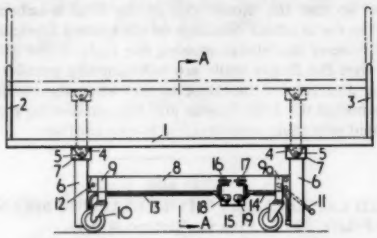
A device for maintaining the water in a swimming pool at an established level, is disclosed. The subject device involves a water-level tank which has a fluid connection to the swimming pool such that water in both the water-level tank and the swimming pool are at the same level. A double-pole float switch is mounted within the water-level tank to continually sense the water level therein. Whenever the water level is below a selected fill level, the float switch activates an electrical solenoid valve which permits water to be added to the pool. Whenever the water level is above a selected level, the double-pole float switch operates to energize a drain pump which extracts water from the pool until the established water level is attained.

3,739,406

ADJUSTABLE BED

Helmut Koetter, Schweicheln-Barmbeck/Westphalia, Germany, assignor to Joh. Stiegelmeyer & Co. GmbH, Herford, Germany

Filed May 28, 1971, Ser. No. 147,734
Claims priority, application Austria, Sept. 16, 1970, 8387
Int. Cl. A47c 3/32; A61g 7/10, 7/06
U.S. Cl. 5—68 3 Claims



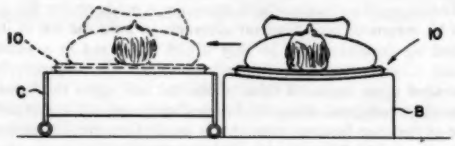
An adjustable bed particularly for use in hospitals and nursing homes in which a chassis is provided with at least one telescopically extendable span, a bed frame tiltable relative to the chassis includes a middle portion and two end portions hinged to the middle portion, with at least one lifting assembly being disposed on the chassis at each end of the middle portion of the bed frame for adjusting the bed frame to various elevated and inclined positions, and at least one foot for each extendable part of the span.

3,739,407

INVALID TRANSFER APPARATUS

Paul F. Stiller, Clarence, N.Y., assignor to Cornell Aeronautical Laboratory, Inc., Buffalo, N.Y.

Filed Jan. 18, 1971, Ser. No. 107,196
Int. Cl. A61g 7/08; A47c 27/08
U.S. Cl. 5—81 B 2 Claims



An invalid transfer apparatus having a plurality of air cells, the upper surfaces of which are flexible to conform to the shape of a patient resting thereon, the lower surface of which contains a plurality of restricted orifices passing therethrough and is supported by a substantially horizontal surface such as a mattress, air is supplied through the restricted orifices to the boundary layer between the lower surfaces and the horizontal support surface to greatly reduce the coefficient of friction therebetween.

3,739,408

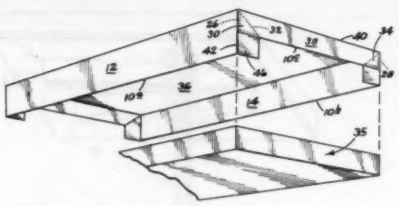
CONTOURED BED SHEET

Rolf W. Pagels, Camas, Wash., assignor to Crown Zellerbach Corporation, San Francisco, Calif.

Filed Apr. 14, 1971, Ser. No. 133,991
Int. Cl. A47g 9/00
U.S. Cl. 5—334 C 7 Claims

A contoured bed sheet made from a single, substantially rectangular expanse of flexible material by folding over flaps adjacent opposite edges to form a rectangular article having double-ply edge margins. An outer corner portion of an edge

margin thus formed is folded over against remainder portions of such edge margin, along a line extending diagonally of the fold line for the flap in such edge margin. The corner is adhe-



sively secured to the underlying remainder portions. When the flaps are lifted from the central expanse of the sheet, they form side panels, and the end of the expanse which has the folded over corner portions forms an end panel.

3,739,409

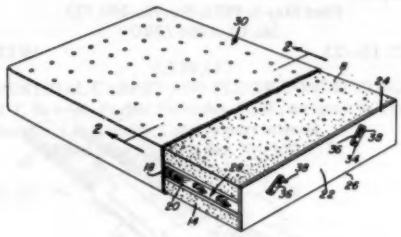
ADJUSTABLE MATTRESS

Calvin N. Johnson, Mt. Airy, N.C., assignor to Kenneth M. Chitton, Winston-Salem, N.C., a part interest

Filed Aug. 3, 1971, Ser. No. 168,552

Int. Cl. A47c *23/04*

U.S. Cl. 5—345 **3 Claims**



A bed mattress embodying top and bottom compressibly resilient pads aligned with each other and having adjacent surfaces defining an intervening space. These pads, susceptible of use in either single or double mattresses, can be made of foam rubber and are confined within the limits of an encasing cover made of ticking or the like. Pad adjusting means is confined in the space between the pads and is capable of moving the top and bottom surfaces toward and from each other in a manner to vary the expansible and contractible cushioning properties of the pads at will. The adjusting means is captive and operable within the space, is mechanical, is optionally manually regulatable, and capable of compressing and stiffening the pads in a manner to provide a firm or soft mattress, as desired.

3,739,410

COLLAPSIBLE BOAT WITH V-SHAPED PNEUMATIC FLOAT

Bernard Marie Charles Fortin, 16, rue Dinanderie, Rouen, France

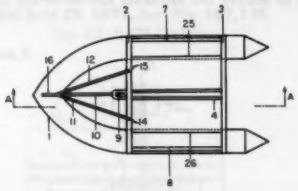
Filed Dec. 23, 1970, Ser. No. 100,927

Claims priority, application France, Jan. 20, 1970, 7001841

Int. Cl. B63b *7/08*

U.S. Cl. 9—2 A **10 Claims**

This invention relates to a boat intended mainly for sail navigation, comprising a v-shaped pneumatic float forming part of a collapsible structure comprising a forward and a stern transversal board resting on the float and which are linked together by at least one longitudinal beam, the forward tip of the float also being connected to said structure by bars



positioned in accordance with the edges of a pyramid having its summit fixed on the forward tip of the float and its base fixed to the structure.

3,739,411

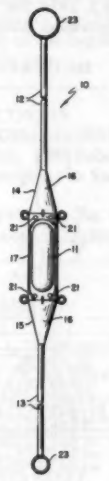
LOW FREQUENCY WAVE ABSORBING DEVICE

John O. Ess, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 9, 1971, Ser. No. 196,892

Int. Cl. B63b *21/52, 51/02*

U.S. Cl. 9—8 R **3 Claims**



This disclosure is directed to a spar buoy system within which a compressible air bag or container has been installed to stabilize a platform. The compressible bag is positioned with its center at the center of gravity within a fixed area and pressurized such that the bag collapses or expands due to surrounding water pressure. The surrounding water applies a pressure onto the bag such that the pressure within the bag is equal to the pressure outside the bag.

3,739,412

BOOK-BINDING AND MACHINES THEREFOR

George Card, Harpenden; John Luckins, Caterham, and Elles Joseph Tidmarsh, Andover, all of England, assignors to IPC Services Limited, London, England

Filed May 5, 1971, Ser. No. 140,449

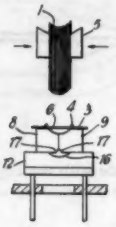
Claims priority, application Great Britain, May 6, 1970, 21,919/70

Int. Cl. B42c *5/02*

U.S. Cl. 11—5 **13 Claims**

Separate leaves to be bound together are arranged to provide a book body, the body being supported and the leaves

relatively displaced to round the back of the body and to produce a corresponding concave shaping along the front of the body. Adhesive is then applied to the rounded back so as adhesively to secure the separate leaves of the body together.



Longitudinal string elements may be secured along opposite sides of the body adjacent to the back to form shoulders which, upon completion of the binding operation, cooperate in retaining the body firmly within a case of the binding.

3,739,413

TREATMENT OF FOOTWEAR

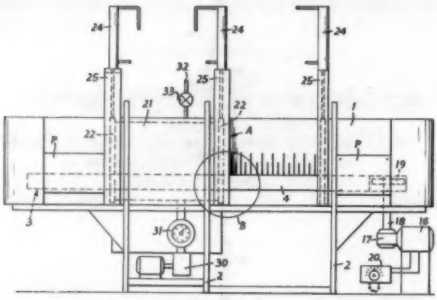
Alfred Freeman, 94 Orlingbury Road, Isham, England

Filed July 2, 1971, Ser. No. 159,247

Claims priority, application Great Britain, July 4, 1970, 32,526/70

Int. Cl. A43d

U.S. Cl. 12—1 A **12 Claims**



Footwear treatment system comprising a conveyor made up of a plurality of chain sections each to carry a batch of footwear to be treated. Chain passes through modular footwear treatment zones in which the footwear is first heat set and then dried by vacuum. Timed meter steps conveyed to transfer batches from zone to zone at equal intervals.

3,739,414

SHOE MANUFACTURE

Ronald Walter Thomas Skelham, Kettering, England, assignor to The Shoe and Allied Trades Research Association, Kettering, Northhamptonshire, England

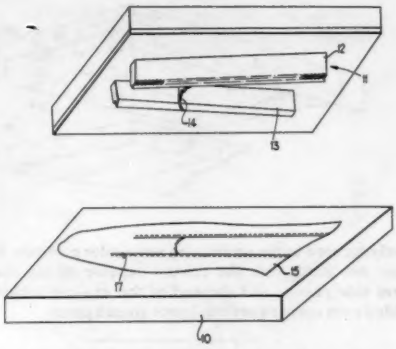
Filed Nov. 23, 1971, Ser. No. 201,371

Claims priority, application Great Britain, Nov. 30, 1970, 56,676/70

Int. Cl. A43d *9/00*

U.S. Cl. 12—142 R **17 Claims**

A method of shoe manufacture involving welding together component parts of a blank and subsequently preforming and finishing. In one form the lining is joined to the outer by a tear-seal weld extending along the top line so that at least some lining extends unbroken across the weld line to permit preforming, the waste material being subsequently torn away. Another feature involves joining an insole portion to an outer portion, preforming and removing a gusset from the insole so as to give



to the insole the requisite shape and area of a finished shoe insole. Lasting procedures are reduced and closing shop operations performed upon the flat blank before preforming.

3,739,415

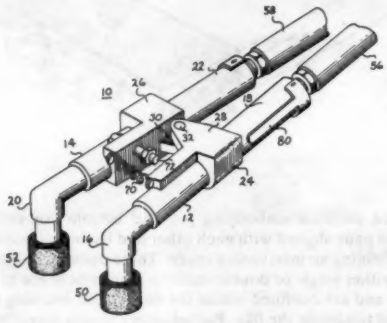
PORTABLE CLEANING TOOL FOR ELECTRICAL CONDUCTORS

Raymond Lee Larson, Erie, Pa., assignor to General Electric Company, New York, N.Y.

Filed May 5, 1972, Ser. No. 250,722

Int. Cl. A46b *13/02*

U.S. Cl. 15—23 **10 Claims**



A portable cleaning tool for stripping an electrical conductor includes a pair of pivotably interconnected support members each having a drive shaft projecting therefrom and each having independent drive means for driving its drive shaft. The support members and the drive shafts are relatively oriented such that relative pivotal movement of the support members in a first direction moves the drive shafts, and cleaning elements such as wire brushes mounted thereon, toward each other and such that relative pivotal movement of the support members in a second direction moves the drive shafts, and cleaning elements mounted thereon, away from each other.

3,739,416

HYGIENICALLY SHIELDED ROTARY TOOTHBRUSH

Masami Mike Kurachi, 311 High Street, Modesto, Calif.

Filed Jan. 17, 1972, Ser. No. 218,302

Int. Cl. A61c *17/00*; **A46b** *13/02*

U.S. Cl. 15—23 **8 Claims**

A hygienically shielded rotary toothbrush having a brush shield comprising a substantially open structural network to

reduce the deposit and transfer from person to person of remnant toothpaste, bacteria and organic matter. Internal switches on the motor casing are triggered by a protruding nub

affixed to the interior of the shaft shield to actuate the motor to drive the rotary brush either in a clockwise or in a counterclockwise direction.

3,739,417

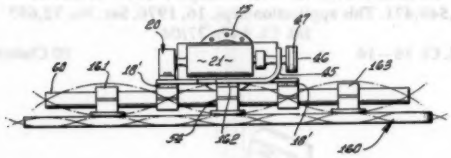
INDUSTRIAL CARPET AND FLOOR CONDITIONER

Harold T. Sawyer, Pacific Palisades, Calif., assignor to Vernon D. Boehler, Los Angeles, Calif., a part interest

Filed June 4, 1971, Ser. No. 150,075

Int. Cl. A47l *11/03*

U.S. Cl. 15—92 **4 Claims**



A single transversely aligned floor conditioning plate or a group of transversely aligned floor conditioning plates are mounted on a tubular support which in turn is carried by an appropriate vehicle. For vibrating the plates at or near one of their modes of natural frequency, a single source of sinusoidal energy vibrating in the low sonic range is mounted midway between opposite ends of a resonant tubular support, at an antinodal point. When more than one resonant plate is employed, the other plates are also mounted at antinodal points by means of pedestal supports. A work shoe below each plate has an accumulator chamber for reception of cleaning liquid located above the work shoe and separated from the work shoe by a series of resilient spring mounts located at antinodal points which alone and/or in combination with the liquid transfer the sinusoidal acoustic resonant energy from the source through the tubular support and plate thereon into the conditioning fluid. The fluid medium is transformed into a state of cavitation and continues after it leaves the chamber. Subsequently a suction apparatus draws the spent and soiled conditioning fluid away from the conditioning operation.

3,739,418

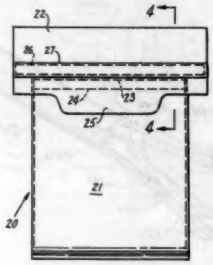
LITTER SCOOP

Gary A. Yonaites, and Rosemary C. Yonaites, both of 1529 Greenleaf St., Evanston, Ill.

Filed July 29, 1971, Ser. No. 167,118

Int. Cl. A47l *13/52*

U.S. Cl. 15—104.8 **5 Claims**



A disposable litter scoop formed of a flexible paper or plastic bag having scoop panels secured to the upper edge thereof in spaced apart opposed relation to permit the scooping of litter therebetween after which the panels and bag are inverted to drop the litter into the bag. The panel scoop members may be turned inwardly of the bag to seal the bag and to form a handle for carrying the bag.

3,739,419

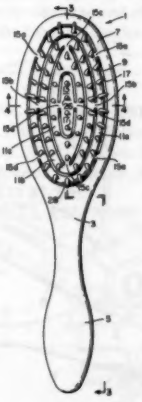
NON-SNAGGING HAIRBRUSH

Solomon Natman, Brooklyn, and Robert A. Cohen, Kew Gardens, both of N.Y., assignors to Stance Industries, Inc., Brooklyn, N.Y.

Filed Dec. 7, 1970, Ser. No. 95,477

Int. Cl. A46b *3/22, 5/00*

U.S. Cl. 15—187 **23 Claims**



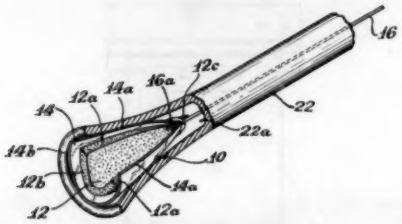
A hairbrush includes a plurality of concentric rings forming carrier plates for the bristles. The concentric rings are flexibly connected by hinges to allow the rings to move with respect to each other. The bristles carried by the concentric rings are stiff, allowing deep penetration of the hair. The flexibly mounted concentric rings allow the bristles to easily slip past any snags or knots encountered in the hair.

3,739,420

DEVICE FOR SWABBING THE BORE OF A MUSICAL INSTRUMENT

Nicholas H. Kafkis, Chicago, Ill., assignor to Reco Corporation, Pittsburgh, Pa.

Filed Mar. 10, 1972, Ser. No. 233,585
Int. Cl. B08b 9/02; G10d 9/00
U.S. Cl. 15—211 7 Claims



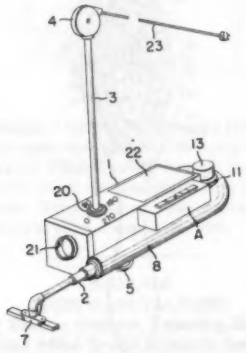
A device for removing moisture from, and cleaning the bore of, a clarinet, saxophone, or the like, musical instrument. In its preferred form, the device comprises a generally triangularly shaped body portion formed of a flexible foamed plastics material such as polyurethane, and a similarly shaped cover sheet formed of a moisture-absorbent material such as chamois. The cover sheet is of a size such that the side margins thereof extend beyond the corresponding margins of the body portion. The body portion and the cover sheet are secured to one another at an apex thereof, and a flexible cord is provided for the device to enable it to be pulled through the bore of a musical instrument.

3,739,421

AUTOMATIC SUCTION CLEANER

Hiroshi Fukuba, No. 320-82, Matsugaoka 2-chome, Nagareyama-shi, Chiba-ken, Japan

Filed Jan. 13, 1971, Ser. No. 106,094
Claims priority, application Japan, Jan. 14, 1970, 45/4006
Int. Cl. A47l 5/00
U.S. Cl. 15—319 9 Claims



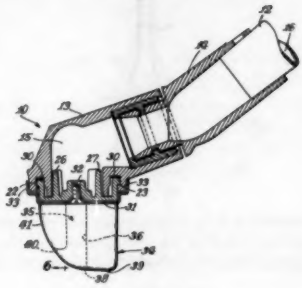
An automatic suction cleaner is provided with a suction air-current producer and a suction nozzle connected to said suction air-current producer, said suction nozzle being so devised as to automatically reciprocate to the extent of a specified distance from said suction air-current producer by virtue of the working of a coiler in order to rub the floor surface, the reversal in the reciprocating motion of said suction nozzle is effected by the switchover of the motion of said coiler which takes place whenever said coiler is overloaded.

3,739,422

SHAG RUG CLEANING TOOL FOR USE WITH VACUUM CLEANERS

Robert E. Johnson; Donald F. Swanson, both of St. Paul, and George A. Westergren, White Bear Lake, all of Minn., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed Sept. 28, 1971, Ser. No. 184,525
Int. Cl. A47l 9/06
U.S. Cl. 15—397 11 Claims



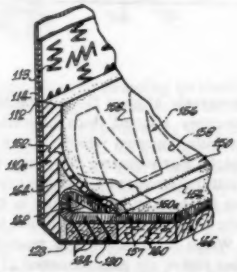
A tool for use with a canister-type vacuum cleaner wherein a wand is provided at one end with a suction dirt pick up tool and is connected through suitable flexible tubing to the suction means of the canister wherein the picked up dirt is deposited in the vacuum cleaning operation. The pick up tool is adapted for use in cleaning high pile material such as shag rugs and defines a rake structure having a plurality of hollow teeth for improved cleaning of the rug pile.

3,739,423

BASE AND BORDER ASSEMBLIES FOR FLOOR COVERINGS AND THE LIKE

Clyde T. Denton, West Covina, Calif., assignor to Resilient Services Incorporated, Los Angeles, Calif.

Division of Ser. No. 667,705, Sept. 14, 1967, Pat. No. 3,549,471. This application Sept. 16, 1970, Ser. No. 72,657
Int. Cl. A47g 27/04
U.S. Cl. 16—16 10 Claims



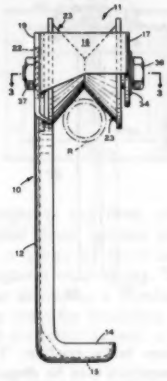
Base and border assemblies include a flexibly joined tack bar for securing a carpet. Flexible cove structures may be lifted to insert a carpet edge. Improved fit between the base and border assembly and the field covering is secured by means of tapered shim stock that extends from the border under the field covering. Fit between sections of base is facilitated by an overlap, with the front flange longer than the back flange.

3,739,424

SUSPENDED TROLLEY

George E. Gonsalves, and Felice Dosso, both of 623 Bergen St., Brooklyn, N.Y.

Filed May 6, 1971, Ser. No. 140,781
Int. Cl. B60b 37/00; B61b 3/00; B61f 11/00
U.S. Cl. 16—98 11 Claims



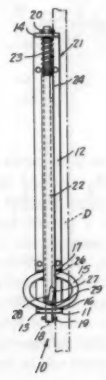
A wheel construction of the type of suspended trolley which moves on rail means and is mounted on hanger means for moving a load along the rail means; the wheel construction comprising wheel members formed as steel stampings to withstand heavy loads and to extend the normal life thereof.

3,739,425

HINGE

Selfred Moen, Route No. 1, Madison, Minn.

Filed July 30, 1971, Ser. No. 167,590
Int. Cl. E05f 1/12
U.S. Cl. 16—189 5 Claims



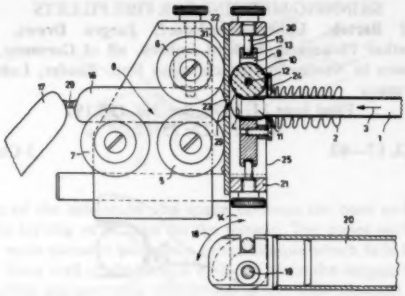
A hinge having an elongate pintle and an elongate tubular hinge member mounted on the pintle for rotary movement thereon and vertical sliding movement thereon. An inclined generally circular track surrounds the lower end of the tubular member and the pintle. A roller on the tubular member rides the circular track to raise the tubular member on the pintle as the tubular member revolves on the pintle. A compression spring bearing against the top of the tubular member normally urges the tubular member downwardly on the pintle to normally maintain the hinge in a closed door position.

3,739,426

SAUSAGE MACHINE

Karl Schnell, 7065 Winterbach, Germany

Filed May 18, 1971, Ser. No. 144,528
Claims priority, application Germany, May 26, 1970, P 20 25 620.6
Int. Cl. A22c 11/02, 11/10
U.S. Cl. 17—33 14 Claims



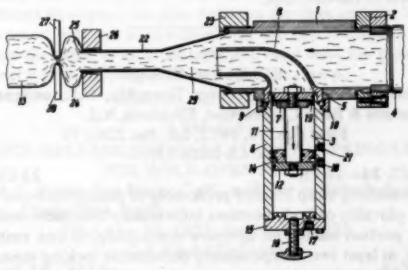
A machine for filling sausage meat into tubular casings, such as skins and the like, has a filling spout rotatable about its longitudinal axis, a braking mechanism for the discharging casing surrounding the spout in the range of its discharge end, and a retaining device preventing rotation of the formed sausage. The spout has a polygonal, and preferably triangular, cross-section at least in the range of the braking mechanism, and elastic braking rollers, or elastically applicable braking rollers, are mounted for rotation in axial planes of the spouts, each roller being aligned longitudinally with a respective polygonal face forming an entraining surface for the associated braking roller. The rollers are rotatably mounted in a rotatable retaining ring, for rotation about axes which are perpendicular to axial planes through the spout, and the rotatable ring is mounted on an arm for swinging away from the spout discharge end for placing a folded casing over the spout. The discharge end of the spout terminates in a circular cross section of the spout. A fold drawing ring surrounds the spout just upstream of the braking rollers, and has radially inwardly protruding tongues corresponding to the number of braking rollers and located angularly midway between adjacent rollers. A supporting plate for the rear end of the formed sausage is positioned between the braking mechanism and the retaining device.

3,739,427

SAUSAGE FILLING PROCESS AND APPARATUS

Herbert Niedecker, Am Ellerhang 6, Falkenstein, Germany

Filed Nov. 5, 1971, Ser. No. 196,165
Claims priority, application Germany, Nov. 5, 1970, P 20 54 389.9; July 26, 1971, P 21 37 278.1
Int. Cl. A22c 21/00
U.S. Cl. 17—49 11 Claims



In a sausage filling process, when the sausage casing is filled it is constricted near the end at a location where it contains

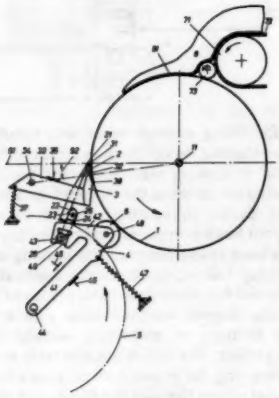
filling material. Thus, nearly no air is locked into the casing. Upstream of the constriction suction is applied through the filling spout so that the material is sucked up or backsucked, rather than being left in the tail outside end of the filled casing. The sucked up material is discharged into the next casing to be filled so waste of filling material is also minimized.

3,739,428

SKINNING MACHINE FOR FISH FILLETS

Alfred Bartels, Lubeck-Israelsdorf; Jurgen Drews, and Gunther Pinkerneil, both of Lubeck, all of Germany, assignors to Nordischer Maschienbau Rnd. Baader, Lubeck, Germany

Filed June 21, 1971, Ser. No. 155,191
Int. Cl. A22c *25/17*
U.S. Cl. 17—62 **3 Claims**



A skinning machine for fish fillets, particularly fish fillets of flat fish including a power driven skinning roller, an oscillating skinning knife arranged in parallel relation to the axis of the skinning roller and a pressure pad arranged below the skinning knife and extending in spaced relation along the circumference of the skinning roller forming a passage for the skin of the fish fillet. The skinning knife is pivotally supported on a shaft extending in parallel spaced relation to the axis of the skinning roller. In its position of rest the cutting edge is kept in adjustable spaced relation to the circumference of the skinning roller within a range of five to 10 times the thickness of the skin of the fish fillet. The skinning knife is coupled with means shiftable by the resistance experienced in the drive of the skinning roller when initiating the skinning process, whereby the cutting edge of the skinning knife is moved toward the circumference of the skinning roller into its cutting position wherein it is spaced from the circumference of the skinning roller a distance corresponding to the thickness of the skin of the fish fillet.

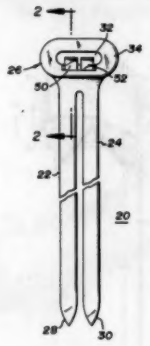
3,739,429

BUNDLING STRAP

Stephen J. Kohke, Bridgewater Township, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed Feb. 14, 1972, Ser. No. 226,176
Int. Cl. B65d *63/00*
U.S. Cl. 24—16 PB **23 Claims**

A bundling strap formed preferably of plastic material having a plurality of body portions individually insertable within a head portion having an aperture comprising, in one embodiment, at least two independently deflectable locking members each engageable with an associated one of said body portions to permit the convenient restraint of a plurality of individual articles such as tubular members, cable breakouts, and the like, with a single sprap. In another embodiment, a twist type arrangement is provided wherein the strap head portion comprises pairs of opposed recessed portions each pair being selectively contoured to accept a planarly displaced segment



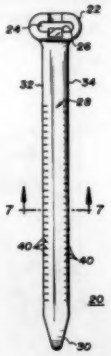
of an associated strap body portion. The independently deflectable locking members may be disposed in juxtaposed, offset, or opposed relationship within the head portion aperture and may be formed either integrally therewith or supplied as discrete inserts.

3,739,430

BUNDLING STRAP

Stephen Kohke, Bridgewater Township, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed Sept. 17, 1971, Ser. No. 181,347
Int. Cl. B65d *63/00*
U.S. Cl. 24—16 PB **9 Claims**



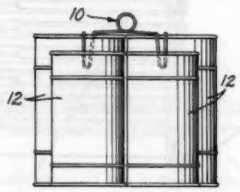
An improved self-locking bundling strap comprising, in one form, a plurality of pairs of spaced, generally transverse narrow slits of predetermined length extending from the edges of the strap inwardly towards the center of the width of the strap, each pair being separated by a selectively proportioned center portion, to facilitate the severance of an excess portion thereof by rotatably twisting said portion while substantially preserving the initial strap strength and flexibility. Other embodiments include obliquely angled slits having either a straight or curvilinear contour.

3,739,431

TRASH CAN HOLDER

Joseph D. Scioloro, 14620 Rath, La Puente, Calif.

Filed Mar. 17, 1971, Ser. No. 125,106
Int. Cl. A44b *21/00*
U.S. Cl. 24—81 C 3 Claims



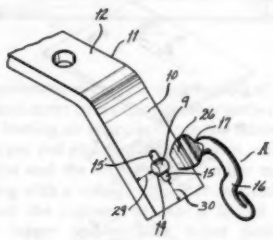
A trash can holder in the form of a double end clip, preferably fabricated from slender metal rod stock, for releasably joining a group of three or four trash cans to restrain the cans against overturning. The clip has a central connecting portion providing a handle and terminating in pairs of depending arms for straddling the rims of adjacent trash cans to hold the latter against separation and thereby overturning.

3,739,432

CHAIN SAFETY HOOK

Benjamin Sander; Robert C. Rueff, and Herschel E. Woltzen, all of St. Louis County, Mo., assignors to Nixdorff-Krein Mfg. Co., St. Louis, Mo.

Filed Apr. 5, 1971, Ser. No. 131,093
Int. Cl. A44b *17/00*; A43c *11/08*
U.S. Cl. 24—201 HE 10 Claims



A chain safety hook connected to one end of a length of chain, being of general U-shape formation, and having a locking head integrally formed on one end of the hook; said head being flattened and having a transverse extent greater than the cross section of the hook stock. The locking head is transversely arcuated substantially intermediate its length to provide a tongue, the plane of which forms an obtuse angle with the axis of the adjacent hook portion to permit said hook to be latchingly acceptable within a bracket opening or within a chain link for disposition of the locking head so as to prevent inadvertent displacement of the hook when in operative position.

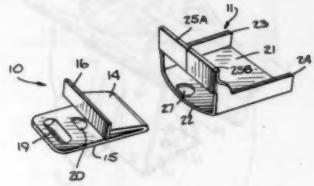
3,739,433

SNAP CLASP FOR BRACELETS

Bernard Druskin, 33-27 91st St., Jackson Heights, N.Y.

Filed Dec. 16, 1971, Ser. No. 208,759
Int. Cl. F16g *7/04*
U.S. Cl. 24—230 CF 8 Claims

A snap clasp for a bracelet or other article of jewelry, the clasp being constituted by a compressible male element insertable in a female element. The male element is formed by a strip of resilient metal folded to define a tongue having upper and lower sections, the rear end of the upper section being bent upwardly to form a limit wall which overlies the rear end of the lower section. One end of the bracelet is attached to the back of the limit wall. The female element is formed of sheet metal cut and bent to define a base wall, a pair of parallel side walls and a front wall extending between the upper front corners of the side walls, the space between the base and front walls serving as an inlet for the tongue. The upper section of the male element includes a raised dimple which falls behind the front wall of the female element when the tongue is fully inserted and prevents withdrawal of the male element unless the tongue is first squeezed to reduce the angle between the upper and lower sections.

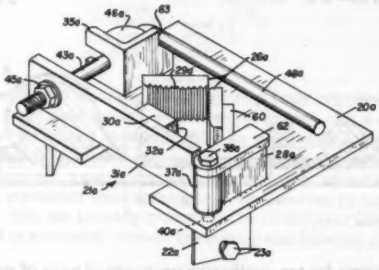


3,739,434

CLAMP FOR WELL PIPE

Eugene F. Wheeler, Franktown, Colo.

Continuation-in-part of Ser. No. 85,360, Oct. 30, 1970, Pat. No. 3,637,011. This application Nov. 3, 1971, Ser. No. 195,091
Int. Cl. E21b *33/03*
U.S. Cl. 24—249 DP 4 Claims



A clamp for holding a string of pipe suspended in a well. The clamp is mounted upon a flat plate which is secured to the well casing to prevent it from rotating. The plate has a throat at one side to receive a pipe suspended in the well and vertically-splined jaws form a V-notched abutment at the crotch of the throat. A clamp arm having a horizontally-splined head is pivotally mounted upon the plate to be pulled against a pipe in the throat to engage the pipe between the jaws and the head. A cammed pull rod connecting with the arm engages a cam seat on the plate to lock the jaws and head onto the pipe and prevent it from slipping and rotating in the clamp.

3,739,435

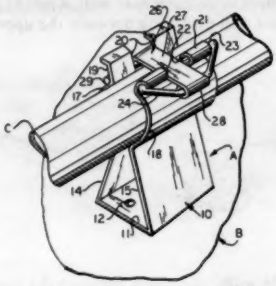
QUICK RELEASE, TOGGLE LATCHING, SPRING CLIP FOR HOLD-OPEN PROP

Ralph F. Baker, San Diego, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Filed Apr. 17, 1972, Ser. No. 244,533
Int. Cl. A44b *21/00*
U.S. Cl. 24—257 R 4 Claims

For retaining in stowed position a rod-like member, such as a hold-open prop for an airplane engine nacelle panel, a

generally U-shape spring clip member provides for temporary retention of the prop during such time as the airplane is on the ground, and toggle latch means hingedly mounted on one leg



of the clip member may be swung over to engage the other leg and securely latch the prop in the clip to insure against its accidental release during flight.

3,739,436

PROCESS AND APPARATUS FOR THE CONTINUOUS TREATMENT OF PILE FABRICS

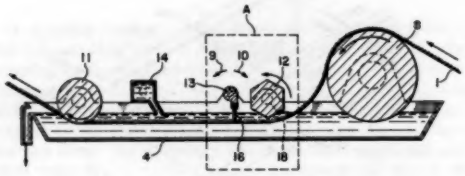
Erich Naujoks, Jesteburg, and Heinz Rommel, Maschen, both of Germany, assignors to Artos Dr.-Ing. Meier-Windhorst Kommandit-gesellschaft, Hamburg, Germany

Filed Apr. 22, 1971, Ser. No. 136,463

Claims priority, application Germany, Apr. 25, 1970, P 20 20 365.0

Int. Cl. D06c *29/00*; D06q *1/00*

U.S. Cl. 26—2 R **3 Claims**



A process for the continuous treatment of webs of material having an upright nap consisting at least partially of thermoplastic fibers, and in particular for restoring the upright nap of velvet, velours, plush and the like, which comprises subjecting the web of material to a temperature above the softening point of the thermoplastic fibers and moving the webs substantially vertically with respect to the direction of travel of the web, and subsequently cooling it to a temperature below the softening point of the fibers before exposing the web to any mechanical or hydrodynamic pressure. Apparatus for carrying out the treatment is also described.

3,739,437

WEAVING DEVICE

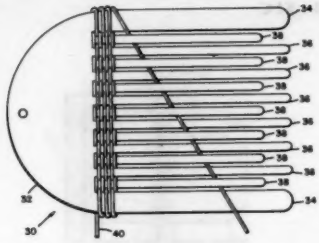
Gisele M. Alberici, 2362A Folsom St.; Lilly U. Botta, 764 7th Avenue, and Henry W. Jahrens, 715 45th Avenue, all of San Francisco, Calif.

Filed May 17, 1971, Ser. No. 144,107

Int. Cl. D03d *29/00*

U.S. Cl. 28—15 **1 Claim**

A weaving device having a plurality of substantially parallel, elongate resilient fingers carried at one end by a base portion, alternate of the fingers being somewhat longer than the others of the fingers. Yarn may readily be interwoven under and over alternate of the fingers by applying a bending force to the end portions of the longer fingers to deflect them, thus permitting



the yarn to be inserted along a substantially straight-line path. Yarn may thereafter be inserted parallel to, and in the place of, the fingers to create a woven fabric or article.

3,739,438

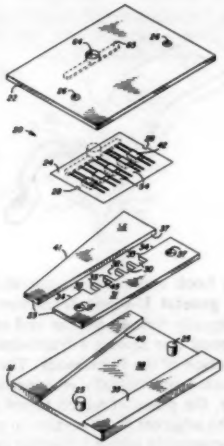
SYSTEM FOR MOLDING ELECTRONIC COMPONENTS

Richard A. Lambrecht, Greenville, S.C., assignor to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 13,956, Feb. 25, 1970, Pat. No. 3,650,648. This application Nov. 18, 1971, Ser. No. 199,904

Int. Cl. H01g *13/00*

U.S. Cl. 29—25.42 **4 Claims**



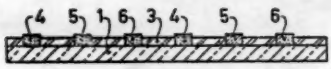
System for injection molding components including process and an apparatus consisting of at least two mold parts having molding cavities formed therein when the parts are brought together, a sheet-like frame member disposed between the mold parts and having a pattern of cutouts therein defining central openings in registry with mold cavities and pairs of slots in the sheet extending from the openings to form elongated prong-like strips which extend into the cavities and support the electronic components therein, and a passage in one of the mold parts overlying the slots in the sheet whereby fluid molding material can be flowed through said slots and into the cavities to encapsulate the components therein.

3,739,439

METHOD OF MANUFACTURING DISPLAY SCREENS FOR CATHODE-RAY TUBES

Hand Dignus Duinker, Emmasingel, Eindhoven, Netherlands, and Eric Raymond Leng, Accrington, England, assignors to U.S. Phillips Corporation, New York, N.Y.

Filed June 10, 1971, Ser. No. 151,941
Int. Cl. H01j 9/00
U.S. Cl. 29—25.18 5 Claims



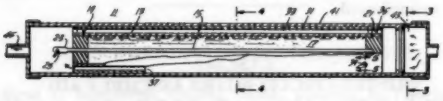
After the development of the image of hardened pva obtained by exposure on the face plate panel of a cathode-ray tube and before the screen can be completely dried, the image is partly destroyed owing to the film of developing liquid which is left on the screen. This results in a poorly defined image and an upset colour balance. A sharply defined image is obtained by treating the screen with acetone immediately after, or even during, development.

3,739,440

OZONE GENERATOR AND METHOD OF MAKING SAME

Norman S. Lund, and Norman W. Lund, both of P.O. Box 246, 6511 New Haven Ave., Melbourne, Fla.

Filed June 2, 1971, Ser. No. 149,234
Int. Cl. H01j 9/18
U.S. Cl. 29—25.13 3 Claims



An ozone generator apparatus and method of making same having inner and outer tubes connected together with spacers therebetween leaving air space between the tubes. The smaller tube has a copper rod attached along its axis and is filled with a brine solution and the larger tube is either metal or has a metallic coating with a voltage source connected between the larger tube and the copper rod. Air is forced and directed between the larger and smaller tubes where ozone is generated.

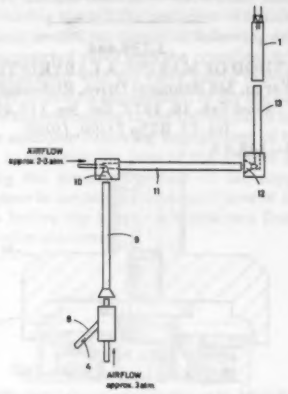
3,739,441

APPARATUS AND METHOD TO FILL FLASHLAMPS

Peter Kaufmann, Stadtbergen, and Reinhold Liepert, Wortelstetten, both of Germany, assignors to Patent-Treuhand-Gesellschaft fur elektrische Gluhlampen mbH, Munich, Germany

Division of Ser. No. 18,875, March 12, 1970, Pat. No. 3,630,650. This application Oct. 13, 1971, Ser. No. 189,037
Claims priority, application Germany, Mar. 17, 1969, P 19 13 417.9
Int. Cl. H01j 9/18
U.S. Cl. 29—25.13 7 Claims

To make flashlamps in which the filler material has sharply bent foil shreds, which are buckled, the shreds are sucked through a supply tube by an air flow, preferably of about 3 at and accelerated in the first conduit, which terminates in a chamber, or end wall against which the threads are flung so that they will buckle by the impact; the buckled foil shreds are then removed by an air flow of, for example from 2 to 3 at, in a direction essentially perpendicular to the original direction of flow, the second conduit terminating in a second chamber having another end wall against which the already buckled shreds are flung to be again buckled to form final sharp bends.



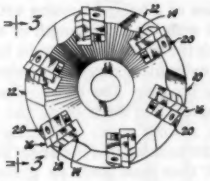
The sharply bent shreds are then moved by means of residual air flow into a lamp bulb, and then sealed into the bulb.

3,739,442

CUTTING TOOLS

Norman H. Lovendahl, 814 Clinton, River Forest, Ill.

Filed Dec. 27, 1971, Ser. No. 212,115
Int. Cl. B26d 1/12
U.S. Cl. 29—105 R 3 Claims



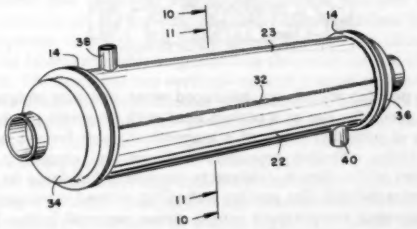
A cutting tool having a rotatable cutter body provided with spaced apart slots around its periphery. In each slot a cutter blade is accurately positioned by an anvil and a locating spacer and then locked into place by a wedge. The locating spacers provide a maximum support area for the cutter blades and are prevented from turning by a shoulder on its locating surface. Also the locating spacers can be of different sizes and selected to accurately control the cutting tool location dimensions.

3,739,443

METHOD OF FORMING A SHELL-AND-TUBE HEAT EXCHANGER

Irwin R. Friedman, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis.

Filed Feb. 9, 1972, Ser. No. 224,868
Int. Cl. B21d 53/02
U.S. Cl. 29—157.3 R 5 Claims



This specification discloses a series of steps useful in manufacturing a shell-and-tube heat exchanger in which one or

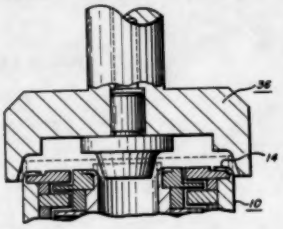
more baffles are disposed. Particular emphasis is given to those steps which are used to provide a good seal between the baffle and the internal wall of the shell.

3,739,444

METHOD OF MAKING A LABYRINTH SEAL

E. James Vargo, 345 Balmoral Drive, Richmond Heights, Ohio

Filed Feb. 16, 1971, Ser. No. 115,498
Int. Cl. B23p *11/00*, *19/00*
U.S. Cl. 29—148.4 S 8 Claims



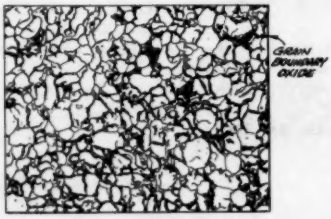
The present disclosure involves an improvement in the method of forming a labyrinth seal which has an outer member comprising a hollow cylindrical housing containing a plurality of stacked annular first plates positioned apart by means of annular first spacers. An inner member is provided which comprises a plurality of stacked annular second plates which interleave with the first plates and are positioned apart by means of second annular spacers. The improvement comprises the provision of a hollow housing with a first cover affixed thereto and with the axial length of the housing being sufficient to permit the upper portion to be bent over to form a flange. An inner cylindrical support member is inserted into the hollow in the housing. The first and second plates and spacers are then stacked in the housing and the first plates interleave with the second plates of the inner member. The upper portion of the housing and the upper portion of the support member are then bent over to position the first and second plates and the first and second spacers in the housing.

3,739,445

POWDER METAL MAGNETIC POLE PIECE

James M. Gabriel, Monsey, N.Y., and William Reilly, Fort Lee, N.J., assignors to Chromalloy American Corporation, New York, N.Y.

Filed Dec. 29, 1970, Ser. No. 102,364
Int. Cl. C22c *3/00*
U.S. Cl. 29—182.5 5 Claims



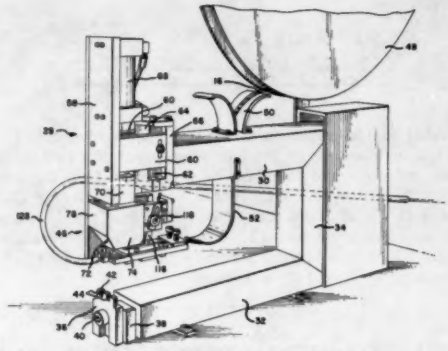
A powder metallurgy produced wear resistant magnetic pole piece for use as a pickup head with magnetic playback tapes is provided made of a magnetically soft ferrous alloy containing effective amounts of silicon and aluminum. A powder of the alloy is oxidized to provide a thin oxide on the particles thereof. The powder is then hot pressed in vacuum at an elevated temperature into a dense sintered body. The presence of oxide in the grain boundaries confers wear resistant properties to the alloy. An oxygen content of about 3,400 to 4,400 ppm is preferred

3,739,446

APPARATUS FOR INSERTING TERMINALS INTO PANEL MEMBERS

Alden Owen Long, Jr., and Mervin Leonard Shughart, both of Carlisle, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Jan. 26, 1972, Ser. No. 220,860
Int. Cl. H05k *13/04*
U.S. Cl. 29—203 B 7 Claims



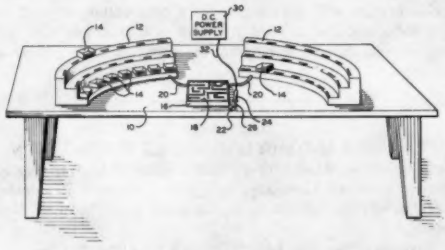
Apparatus for inserting terminals, in the form of a continuous strip, into a panel-like member comprises strip feeding means, a means for partially severing the individual terminals from the strip, and a means, in the form of an inserting ram, which completes the severing operation and inserts a terminal into a panelboard.

3,739,447

PRINTED CIRCUIT BOARD ASSEMBLY AID

Robert B. Halliday, Chenango Forks, N.Y., assignor to The Singer Company, New York, N.Y.

Filed Apr. 30, 1971, Ser. No. 139,054
Int. Cl. H05k *13/04*
U.S. Cl. 29—203 B 8 Claims



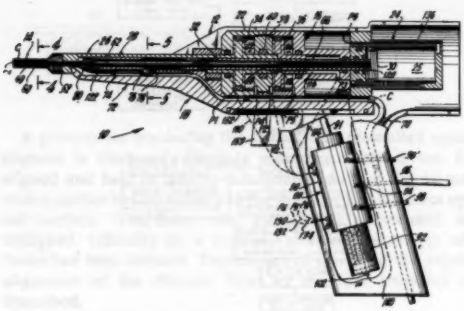
Apparatus for assisting an operator in the selection, from a plurality of individual bins, of each component to be assembled on a conventional printed circuit board. A probe is provided for manual insertion by the operator through the holes in the p. c. board. The latter is held in a fixture in superimposed relation to conducting paths which have been prepared for the particular board to be assembled. An electrical power supply is connecting through the probe, and the conducting path contacted thereby when inserted through any particular hole in the board, to a lamp on the bin containing the component whose leads are to be inserted through that hole.

3,739,448

SEMI-AUTOMATIC HAND TOOL FOR EXTRUDING ELECTRICAL CONNECTORS

Peter Garner, Bernardsville, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed Oct. 18, 1971, Ser. No. 189,994
Int. Cl. H01r 43/04
U.S. Cl. 29—203 H 11 Claims



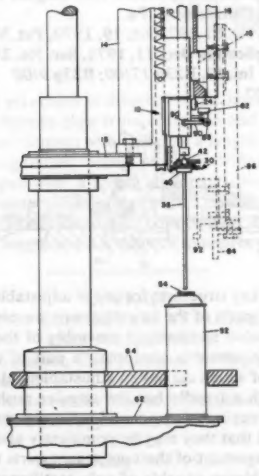
A semi-automatic hand tool for extruding electrical connectors in order to connect a wire to a post of an integrated circuit panel includes extruding means which are actuated by an air-operated actuating means, and which includes means for feeding the electrical connectors to the extruding tip. The operation of the extruding means, the actuating means, and the feeding means are coordinated by a multi-valve control system which is air operated. In addition, a sensing means is provided in conjunction with the extruding means for insuring that the hand tool does not recycle prematurely.

3,739,449

VALVE INSERTING DEVICE FOR AEROSOL CONTAINERS

Alfred L. Bergerron, Quincy, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.

Filed May 28, 1971, Ser. No. 147,867
Int. Cl. B23p 19/04
U.S. Cl. 29—208 B 10 Claims



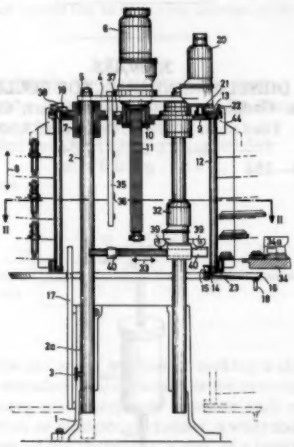
A reciprocably mounted support on which there are mounted a valve gripper and a keeper for movement with the support toward and from a container and for movement relative to the support, springs holding the gripper and keeper distended and in tandem relation to each other such that the support when moving toward the container is capable of continuing movement toward the container following engagement of the gripper supported valve with the container to move the keeper into engagement with the valve and of movement relative to the keeper following engagement of the keeper with the valve a distance corresponding to the distention of the keeper. There is a cam operable following engagement of the keeper with the valve to separate the jaws of the gripper and a cam operable during the initial movement of the support away from the container to retract the separated jaws of the gripper from the valve before the keeper is withdrawn from engagement with the valve element.

3,739,450

WORKPIECE MAGAZINE

Erwin Deibel, Rastatt, Germany, assignor to Maschinenfabrik Lorenz Aktiengesellschaft, Ettlingen/Baden, Germany

Filed Aug. 25, 1971, Ser. No. 174,644
Claims priority, application Germany, Sept. 4, 1970, G 70 32 993.0
Int. Cl. B23q 7/10
U.S. Cl. 29—211 R 8 Claims

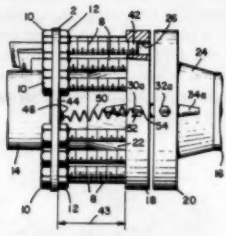


A workpiece magazine, for storing a relatively large number of workpieces before and after they are machined on an adjacent machine tool,has a vertically displaceable storage drum rotatable past a feeding arrangement for the machine tool. The workpieces are arranged in groups on intermediate floors in separate cassettes, one above the other, and the cassettes can be interchangeably suspended on the outer surface of the drum. The drum has two vertically spaced coaxial annular elements united by perpendicular struts, and the elements have holes spaced around their peripheries receiving pins on the ends of the cassettes. The upper element is constructed as an internal ring gear engageable with the pinion of a positioning motor, and the lower ring element forms a roller guide for an oil drip tray which is suspended non-rotatably therefrom. The cassettes are in the form of shaped angle sheet metal funnels or shells having apertures through which a workpiece injector may project into the cassette to eject a workpiece from a floor in the cassette.

3,739,451
MULTIPLE-BOLT INSTALLATION JIG

Roger Jacobson, 1200 Ocean Dock Road, Anchorage, Alaska

Filed Sept. 29, 1972, Ser. No. 293,593
Int. Cl. B23p *19/04*
U.S. Cl. 29—237 15 Claims

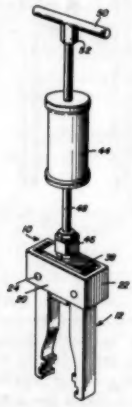


A jig comprising a frame with a plurality of bolts rigidly affixed therein and extending longitudinally therefrom parallel to one another is shown. The jig is mounted on a flanged pipe with the bolts seated in holes in the flange. The frame is then moved forward along the pipe to simultaneously install the bolts into holes in a flange of an abutting pipe.

3,739,452
DIESEL ENGINE INJECTOR PULLER

William A. Gadberry, 1280 Folsom Court, Coquille, Oreg.

Filed Sept. 24, 1971, Ser. No. 183,309
Int. Cl. B23p *19/04*
U.S. Cl. 29—254 6 Claims

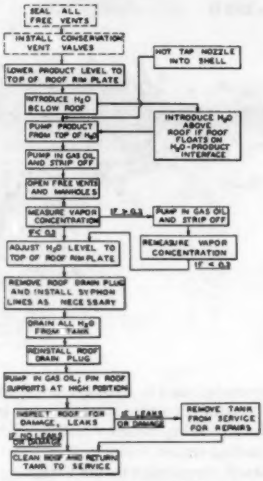


A pair of elongated pivotally mounted jaws depend from a mounting housing wherein a camming member is vertically adjustable so as to engage the jaws above the points of pivotal mounting thereof and effect a corresponding inward swinging of the lower gripping ends. The camming member is adjusted by an elongated adjusting bolt passing through a retaining bar fixed to the lower part of the housing and extending upwardly in threaded engagement with the camming member. A hammer mounting pulling shaft can be coupled to the upper end of the adjusting bolt.

3,739,453
REFLOATING SUNKEN FLOATING ROOFS

Joseph C. Vankoski, Wilmington, Del., assignor to Sun Oil Company, Philadelphia, Pa.

Filed Sept. 7, 1971, Ser. No. 178,259
Int. Cl. B23p *7/00*
U.S. Cl. 29—401 4 Claims

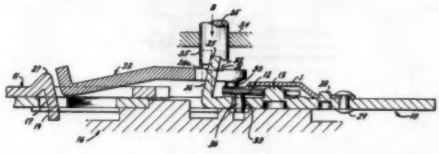

SEAL ALL FREE VENTS
INSTALL CONSERVATION VENT VALVES
HOT TAP NOZZLE INTO SHELL
LOWER PRODUCT LEVEL TO TOP OF ROOF RIM PLATE
INTRODUCE H2O BELOW ROOF
INTRODUCE H2O ABOVE ROOF IF ROOF FLOATS ON H2O-PRODUCT INTERFACE
PUMP PRODUCT FROM TOP OF H2O
PUMP IN GAS OIL AND STRIP OFF
OPEN FREE VENTS AND MANHOLES
MEASURE VAPOR CONCENTRATION
IF > 0.3
PUMP IN GAS OIL AND STRIP OFF
IF ≤ 0.3
ADJUST H2O LEVEL TO TOP OF ROOF RIM PLATE
REMEASURE VAPOR CONCENTRATION
IF < 0.3
REMOVE ROOF DRAIN PLUG AND INSTALL SYPHON LINES AS NECESSARY
DRAIN ALL H2O FROM TANK
REINSTALL ROOF DRAIN PLUG
PUMP IN GAS OIL; PIN ROOF SUPPORTS AT HIGH POSITION
INSPECT ROOF FOR DAMAGE, LEAKS
IS LEAKS OR DAMAGE
REMOVE TANK FROM SERVICE FOR REPAIRS
IF NO LEAKS OR DAMAGE
CLEAN ROOF AND RETURN TANK TO SERVICE

When the floating roof in a covered floating roof tank has sunk and it is desired to refloat the same, the tank is first "safed" by lowering the product level to the top of the rim plate on the roof, introducing water into the tank below the roof (or above, if necessary), pumping the product from the top of the water, then pumping in gas oil to absorb any product, and stripping this off. After safing of the tank, the roof drain plug is removed and the water completely removed from the tank. Then, after reinstalling the drain plug, gas oil is pumped in to raise the roof to a suitable level for inspection thereof. If there is no visible damage and no leaks, the tank may be returned to service after cleaning the roof.

3,739,454
PUSH-BUTTON KEY ASSEMBLY

Alvin E. Thompson, North Wales, Pa., assignor to Philco-Ford Corporation, Philadelphia, Pa.

Division of Ser. No. 81,897, Oct. 19, 1970, Pat. No. 3,680,394.
This application Dec. 21, 1971, Ser. No. 210,506
Int. Cl. B23q *17/00*; B23p *9/00*
U.S. Cl. 29—407 3 Claims



Push-button key structure, for use in adjustable radio tuning apparatus. The parts of the key structure are constructed and arranged to enable mechanized assembly of the push-button keys. Each key assembly comprises a pair of elongate slide members one of which carries an adjustable and lockable cam engageable with a treadle bar the angular position of which determines the tuning of associated radio apparatus. The keys are so designed that they may be completely assembled by interlocking engagement of the component parts thereof, using automatic machinery capable of only rectilinear movements. Provision is made for forcible "sizing" of parts of the key to maintain them in proper position and establish the tolerances required to insure proper operation of the cam.

3,739,455
METHOD OF MAKING FRESNELLED OPTICAL ELEMENT MATRIX

Luis W. Alvarez, Berkeley, Calif., assignor to Humphrey Research Associates, Oakland, Calif.

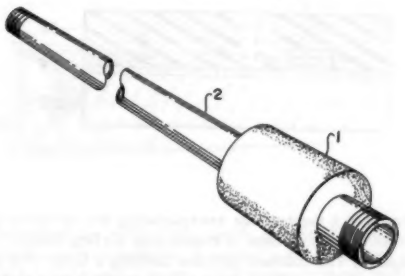
Filed Apr. 5, 1971, Ser. No. 131,156
Int. Cl. B23p 17/00
U.S. Cl. 29—425 **5 Claims**

A process for producing the matrix of a fresnelled optical element is disclosed. Discrete elongate elements are first aligned and held in side-by-side relation so that the element ends together can be formed to the shape of a continuous optical surface. Thereafter the elements are released and realigned, typically on a surface, to form the matrix of a fresnelled lens element. Techniques of changing the angular alignment of the discrete faces of the lens elements are described.

3,739,456
METHOD FOR FORMING A SACRIFICIAL ANODE

John G. Scherer, and Lewis W. Taggart, both of Tulsa, Okla., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

Filed Apr. 30, 1971, Ser. No. 138,969
Int. Cl. B23p 11/02
U.S. Cl. 29—447 **1 Claim**



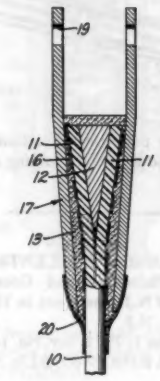
The present invention is directed to an improved method for protecting ferrous pipe from corrosion and comprises affixing in intimate contact with said pipe a length of magnesium tubing. The magnesium tubing, having sacrificial anode properties, is slipped over a length of ferrous pipe while at an elevated temperature. The tubing is then compressed by external pressure until it is in intimate contact with the ferrous pipe throughout its length and it is allowed to cool in place.

3,739,457
METHOD OF CONNECTING ATTACHMENTS TO FIBERGLASS RODS

Elbert Davis, Glendale, Calif., assignor to Nupla Corporation, Sun Valley, Calif.

Continuation-in-part of Ser. No. 835,135, June 20, 1969, Pat. No. 3,660,887. This application Dec. 27, 1971, Ser. No. 212,615
Int. Cl. B23p 3/00, 19/04
U.S. Cl. 29—460 **4 Claims**

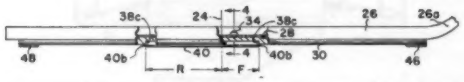
A method of connecting an attachment to the end of a fiberglass rod, tube or other profile. The end of the rod is first separated into a plurality of segments which are held apart from each other by a spacer-spreader. A tetrafluoroethylene tape is wound around the outside of the rod segments, with a substantial amount of separation between the edges of the adjacent tape windings. The rod end is then placed within a fitting and potting compound is poured into the end of the fitting to form simultaneously a plug which completely fills the area between the segments and a socket which completely fills the area between the rod and fitting. The tape forms a slip plane along which the rod is moved within the fitting to convert longitudinal tension into lateral compression and thereby transfer the load across the entire cross-section of the rod.



3,739,458
METHOD OF MAKING A SKI RAIL

Donald G. Reedy, Route 2, and George R. Pattullo, 1570 Pinecrest Street, both of Caro, Mich.

Filed Dec. 20, 1971, Ser. No. 209,569
Int. Cl. B23p 21/00
U.S. Cl. 29—469 **4 Claims**



A snowmobile ski and a method of making a ski which is adapted to be mounted on a snowmobile for movement about a vertical steering axis interjacent opposite ends of the ski. The ski comprises an elongate ski runner, a wear rod mounted on the underside of the ski runner, a slot, of a length substantially less than the length of the wear rod, cut in the underside of the wear rod, and a wear rail received in the slot and having a rear end in abutting relation with the rear wall of the slot, a portion of the wear rod underlying the wear rail to secure the rail thereto.

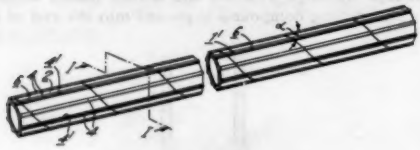
3,739,459
METHOD OF MANUFACTURE OF A RIBBED PILE

Akemasa Otani, 4, 2-chome, Asakusa Hashiba-cho, Tokyo, Japan

Division of Ser. No. 806,918, March 13, 1969, Pat. No. 3,621,663. This application June 7, 1971, Ser. No. 150,661
Int. Cl. B23k 31/02
U.S. Cl. 29—477.3 **5 Claims**

This low-cost, light-weight, high-strength, hollow cylindrical pile having longitudinal ribs is manufactured by rolling an elongated metal plate of predetermined width so as to produce spaced ridges thereon extending at a predetermined angle between lateral edges. The ridged metal plate is spirally wound so that the ridges register to produce longitudinally-ex-

tending ribs and the juxtaposed lateral edges are joined, preferably by welding, to form a continuous spiraled joint.



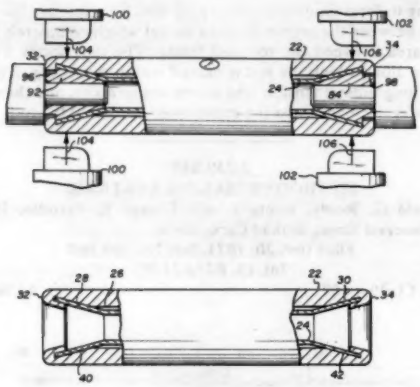
When driven into a penetrable medium, the ribs provide directional control and means for joining adjacent piles into a unitary structure.

3,739,460

METHOD OF JOINING CONCENTRIC MEMBERS

Gilbert I. Addis, Plainfield, and George M. Fairbanks, Piscataway, both of N.J., assignors to Thomas & Betts Corporation, Elizabeth, N.J.

Filed June 1, 1971, Ser. No. 148,707
Int. Cl. B21d *39/00*; B23p *11/00*
U.S. Cl. 29—516 **13 Claims**



A concentric member assembly and an improved method of fabrication thereof including inserting a hollow, externally conically tapered, preferably shouldered wedge means into each end of a preferably metallic, permanently deformable inner elongate tubular member generally centrally aligned within an elongate, preferably metallic tubular outer member to selectively expand the inner member ends into intimate contacting engagement with adjacent internally cinically tapered portions of the outer member inner surface. The wedge means may be suitably arranged either for removal from the inner member after use, or, alternatively, for retention therewithin to provide additional support therefore. The outer member may be inwardly deformed adjacent each of its ends to engage either the adjacent inner member end or the wedge means retained therewithin. The resulting structure may be advantageously employed as a multiple sleeve connecting device or the like.

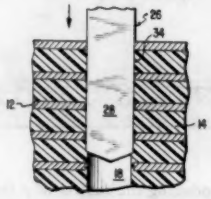
3,739,461

METHOD OF PRODUCING CLEAN WALLED BORES IN LAMINATES WORKPIECES

John A. Cupler, II, Cupler Drive, La Vale Cumberland, Md.

Filed Aug. 3, 1971, Ser. No. 168,649
Int. Cl. B23p *13/04*
U.S. Cl. 29—557 **8 Claims**

A method of enlarging or reaming a bore in a laminated workpiece which consists of selecting a straight fluted reaming tool whose diameter just exceeds that of the bore to be reamed. The reamer is held against rotation while being axially infed into the bore to, concomitantly, kerf the bore wall with its cutting edges. The reamer is then held against further



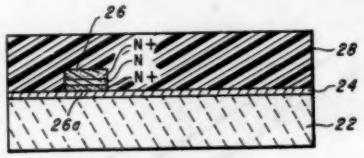
axial movement and rotated to produce a finished bore which does not exhibit that workpiece smear or migration between adjacent laminae which is characteristic of bores formed in a laminated workpiece by infeeding a rotating tool.

3,739,462

METHOD FOR ENCAPSULATING DISCRETE SEMICONDUCTOR CHIPS

Turner Elijah Hasty, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 6, 1971, Ser. No. 104,316
Int. Cl. B01j *17/00*
U.S. Cl. 29—577 **2 Claims**



Disclosed is a method for encapsulating one or more discrete semiconductor chips to expose one surface thereof for metallization. The method includes forming a layer of a soft metal to overlie a relatively large substrate, pressing a surface of each discrete semiconductor chip into the soft metal and then encapsulating the semiconductor chip with suitable encapsulating material. The substrate and soft metal layer attached thereto are then removed from the encapsulated semiconductor chip exposing a surface of the chip. In one embodiment a heat sink is electroplated to the chip and the encapsulating material is removed, leaving a discrete semiconductor chip. In a different embodiment, the encapsulated semiconductor chip is utilized as a part of an integrated circuit.

3,739,463

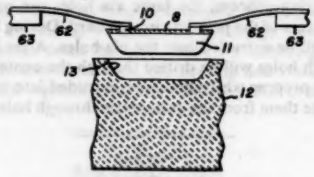
METHOD FOR LEAD ATTACHMENT TO PELLETS MOUNTED IN WAFER ALIGNMENT

Alanson D. Aird, and Sami I. Gabrail, both of Syracuse, N.Y., assignors to General Electric Company, Owensboro, Ky.

Continuation of Ser. No. 838,213, July 1, 1969, abandoned.
This application Oct. 18, 1971, Ser. No. 190,249
Int. Cl. B01j *17/00*
U.S. Cl. 29—580 **10 Claims**

A semiconductor wafer is sub-divided into pellets and the pellets held in their wafer alignment by using a molding compound to form a holder for the pellets. A heated bonding tool

is aligned with and used to simultaneously bond a set of external leads to each semiconductor pellet in sequence. Each pellet after the external leads are bonded thereto is lifted from the holder by the leads.



3,739,464

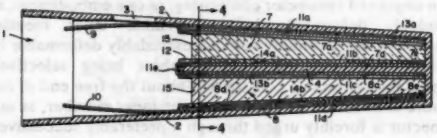
MAKING DISPOSABLE ELECTRIC DEVICES

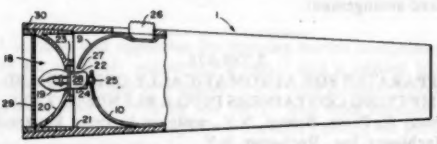
Stanley D. Eilenberger, Middletown, Conn., assignor to Progressive Products Corporation, Kensington, Conn.

Division of Ser. No. 844,592, July 24, 1969, Pat. No. 3,601,601. This application Feb. 8, 1971, Ser. No. 113,163

Int. Cl. H01m 1/00

U.S. Cl. 29—592 16 Claims





A method for making disposable electric devices, such as flashlights, which includes providing a casing having one or more battery compartments; coating one or more surfaces of each compartment with an electrode overlay, such as zinc; coating one or more surfaces of each compartment with another electrode overlay such as carbon; providing serial or parallel electric connection between the compartments; filling the compartments with a battery mix; inserting the operative electrical elements of the device, such as a bulb and lens assembly, in connection with the electrodes and sealing the device.

3,739,465

METHOD OF MAKING AN ELECTROMAGNETIC DEVICE

Kurt Romer, Altbach/Neckar; Josef Schmid, and Adolf Krajc, both of Wernau/Neckar, all of Germany, assignors to Junkers & Co. GmbH, Wernau/Neckan, Germany

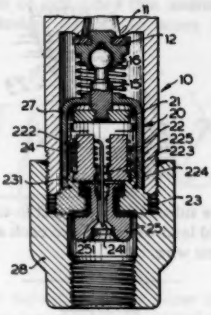
Division of Ser. No. 883,004, Dec. 8, 1969, abandoned. This application Aug. 20, 1971, Ser. No. 173,592

Claims priority, application Germany, July 5, 1969, P 19 34 163.0

Int. Cl. H02k 15/00, 15/14, 15/16

U.S. Cl. 29—596 7 Claims

A bifurcated magnetic core in an electromagnetic device having an armature plate is formed with a fixedly mounted yoke and pair of arms which cooperate with the armature plate and are each provided with a pole surface facing the same. The inherent frequency of the fundamental oscillation of the magnet core prior to application of a winding onto the same is in excess of 25 kilohertz.



3,739,466

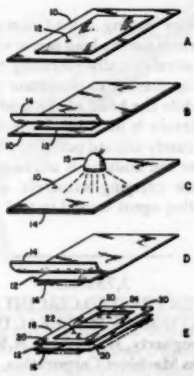
METHOD OF MANUFACTURING AN EXTENDED-TAB MEMORY FRAME

Kenneth L. Schoettle, Hudson, Minn., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Nov. 22, 1967, Ser. No. 684,992

Int. Cl. H01f 7/06

U.S. Cl. 29—604 6 Claims



An improved extended-tab core memory array frame and method for manufacture are described. The structure includes embedded extended-tab and pads. The method includes preforming extended-tab arrays for bonding to a laminated epoxy glass frame.

3,739,467

METHOD OF FABRICATION OF A WIRED MAGNETIC MEMORY PLANE

Guy Antier, St-Martin le-Vinoux, and Gerard Nicolas, Grenoble, both of France, assignors to Commissariat A L'Energie Atomique, Paris, France

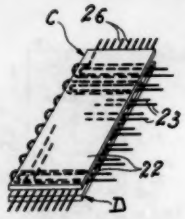
Filed May 17, 1971, Ser. No. 144,114

Int. Cl. H01f 7/06

U.S. Cl. 29—604 13 Claims

The method consists in forming a layer of substantially parallel lead-wires which are insulated with respect to each

other and in forming by molding between the two faces of said layer which is folded in two a series of housings in the form of



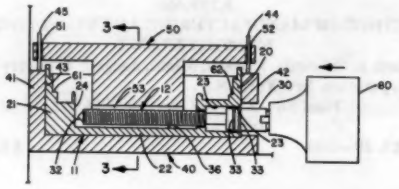
tunnels which are substantially parallel to each other but perpendicular to said lead-wires and are each adapted to accommodate a magnetic wire.

3,739,468

METHOD OF MAKING A VARIABLE RESISTOR

Robert D. Hill, Jr., West Covina, Calif., assignor to Spectrol Electronics Corporation, City of Industry, Calif.

Filed Jan. 28, 1972, Ser. No. 221,628
Int. Cl. H01c 1/02, 17/00
U.S. Cl. 29—613 **5 Claims**



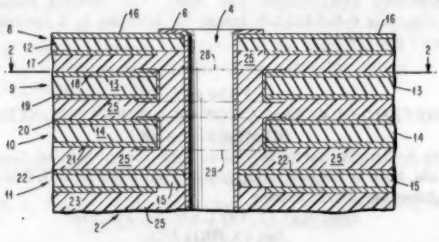
A variable resistor having a lead screw is provided with front and rear journals for the lead screw which are simultaneously formed by ultrasonically vibrating the lead screw and forcing a conical tip thereof to penetrate the rear wall of the resistor housing while the head of the lead screw is forming a front journal. A fixture is inserted in the housing to hold the lead screw in accurately aligned position while the journals are formed. Thereafter the housing is ultrasonically deformed to hold the resistance carrying substrate assembled with the housing and a potting agent is used to seal the substrate to the housing.

3,739,469

MULTILAYER PRINTED CIRCUIT BOARD AND METHOD OF MANUFACTURE

William Edwin Dougherty, Jr., Fishkill, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,293
Int. Cl. H05k 3/16
U.S. Cl. 29—625 **4 Claims**



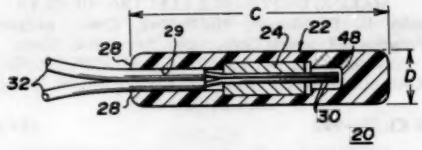
A multilayer printed circuit board wherein via holes, which extend from one surface to the other of one layer of the board, are arranged to be concentric with through holes, which extend from the top surface of one layer to the bottom surface of another layer. The via holes are equal in size to the clearance space which would normally surround a through hole. In the manufacturing process, the large via holes are made for individual layers of the printed circuit board. During lamination, prepreg will be extruded into the via holes. After lamination, the through holes will be drilled through the center of the via holes. The prepreg which had been extruded into the via holes will insulate them from the concentric through holes.

3,739,470

CONNECTOR

Daniel Eppler, Elizabeth, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed Sept. 16, 1971, Ser. No. 181,008
Int. Cl. H01r 43/00
U.S. Cl. 29—628 **4 Claims**



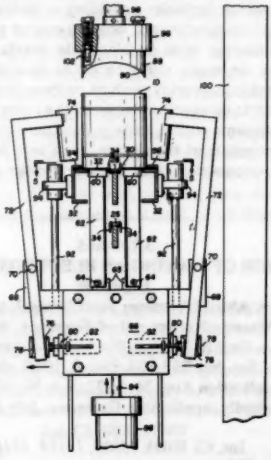
An improved connector comprising, in one embodiment, an extrudably deformable hollow metallic inner member disposed within a suitably orificed extrudably deformable insulating outer member, said members being selectively adapted for extrudable constriction about the free end of one or more conductors inserted within the inner member, as said connector is forcibly urged through a preferably successively restrictive orifice, resulting in an essentially sealed insulated assembly. The inner member may be formed of hollow stock, appropriately wound elongate material, or annular elements in stacked arrangement.

3,739,471

APPARATUS FOR AUTOMATICALLY OPENING AND EMPTYING CONTAINERS INTO A BLENDING TANK

Anthony R. Peres, Bristol, N.Y., assignor to Peres Electronic Machinery, Inc., Rochester, N.Y.

Filed June 17, 1971, Ser. No. 153,942
Int. Cl. B67b 7/38, 7/44
U.S. Cl. 30—4 R **6 Claims**



A method and apparatus for automatically opening containers and emptying product contained therein into a blend-

ing tank where it may be blended with other ingredients. An intermittently operated transport mechanism transports the containers in succession through a series of work stations comprising a cleaning station, an opening station, a top removing and wiping station, an emptying, heating and washing station, a rinsing station, and discharge station. The product emptied from the containers, the adhering product wiped off the container tops, the heating and rinsing water, and any added ingredients are blended together in the blending tank.

3,739,472

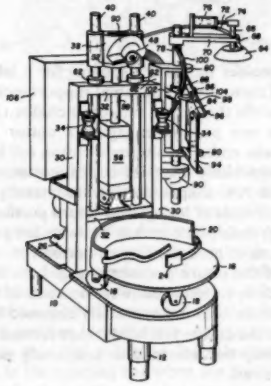
BARREL OPENER

Anthony R. Peres, Bristol, N.Y., assignor to Peres Electronic Machinery, Inc., Rochester, N.Y.

Filed June 17, 1971, Ser. No. 154,023

Int. Cl. B67b *7/38*

U.S. Cl. 30—6.4 **19 Claims**



A method and apparatus for opening barrels comprising a table for rotatably supporting a barrel and a cutting blade movable in response to a source of low fluid pressure into engagement with the top of the barrel, and then movable in response to a source of high fluid pressure causing the cutting blade to pierce the barrel top. Rotation is imparted to the barrel in timed relation to the application of the high pressure source to assure movement of the barrel before the high pressure is applied to the cutting blade. The barrel opener has a brush and vacuum source for cleaning off the barrel top up stream of the cutting blade. Rotation of the barrel through a little over one revolution causes the blade to sever the circular top from the barrel. The barrel opener is further provided with a gripping mechanism for releasably gripping the severed barrel top, and mechanical apparatus for sequentially (1) simultaneously lowering and tilting the severed barrel top to relieve the pressure in the barrel, (2) raising and tilting the barrel top in the opposite direction for leveling the barrel top (3) positioning a wiper blade in a barrel top wiping position, (4) swinging the gripping mechanism and severed barrel top gripped thereby across the wiper blade for wiping off the excess product from the undersurface of the barrel top, and (5) deactivating the gripping mechanism for releasing the barrel top into a storage bin after it has been moved clear of the barrel body.

3,739,473

CREASE CUTTER

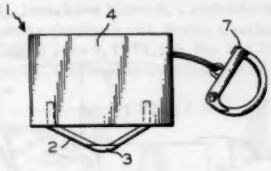
J. Grant Wildman, Boca Beach Apts., Apt. 7, 2531 S. Ocean Boulevard, Boca Raton, Fla.

Filed Dec. 3, 1971, Ser. No. 204,528

Int. Cl. B26b *3/08*

U.S. Cl. 30—164.9 **12 Claims**

A novel pressure cutting device of simple construction and improved safety to the user. It is a novel combination of handle and cutting edge, fabricated of wire. A cutting edge is formed in the wire and is confined to a rounded portion or curvature in the wire. The cutting edge is formed so as to face away from the curvature in the wire. The cutting device can be drawn across paper or any other thin and/or flexible sheet material in any desired pattern to score the paper and



facilitate tearing or separation of the paper according to the scored pattern. The device is ideally suited to cut out news items from newspapers and magazines, to open packaged foods such as meats and cheese, to prepare pages in photograph albums for insertion of pictures, to cut out colored paper in any desired design, etc.

3,739,474

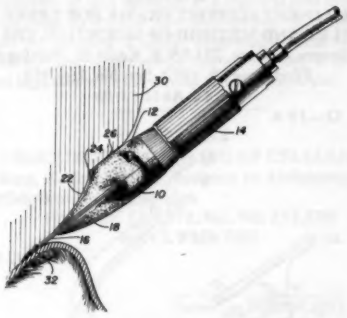
POWER SKINNING KNIFE

Franklyn G. Umholtz, Shutesbury, Mass., assignor to Russell Harrington Cutlery, Inc., Southbridge, Mass.

Filed Sept. 23, 1971, Ser. No. 183,154

Int. Cl. B26b *19/14*

U.S. Cl. 30—215 **1 Claim**



A power operated skinning knife of the type utilizing a pair of counter-oscillating circular toothed blades in close association, a frame for mounting said blades, a handle for the frame, said frame having a continuous external smooth surface which is rounded from adjacent the blades rearwardly towards the handle in two directions, and a cover for the frame and the blades, said cover member having a guiding surface on a generally concave curve in one direction and a convex curve in the transverse direction, this surface then merging into a flat unencumbered top surface.

3,739,475

CHAIN SAW SAFETY METHOD AND APPARATUS

Harold Edward Moore, Torrance, Calif., assignor to McCulloch Corporation, Los Angeles, Calif.

Filed Oct. 19, 1971, Ser. No. 190,574

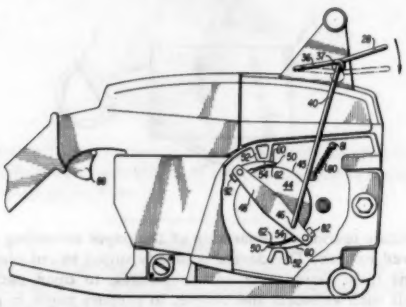
Int. Cl. B27b *17/02*; **B27g** *19/06*

U.S. Cl. 30—383 **3 Claims**

A method and apparatus for preventing injury to the hand of an operator working with a chain saw, of the type having a frame with a frame handle and a control handle, a guide rail or more conventionally termed a "guide bar," a cutting chain

and power means mounted on the frame and operably connected to the cutting chain for driving the cutting chain on the guide rail.

The apparatus includes a bail handle actuation system which performs the dual function of blocking movement of the operator's hand toward the cutting chain and actuating a



brake to immediately stop movement of the chain. The brake is self-locking and upon actuation jams to instantly stop movement of the chain and stall out the chain saw power means.

The method includes the steps of blocking movement of the operator's hand toward the cutting chain, actuating a self-locking brake and braking the cutting chain to an immediate stop.

3,739,476

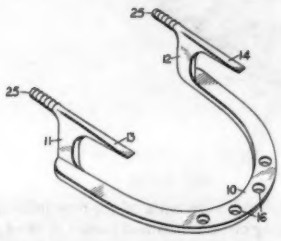
PERMANENT SUPPORT FRAME FOR UPPER JAW DENTURE AND METHOD OF MOUNTING THE SAME

Harold Devere Roberts, 2717 N.E. Knott St., Portland, Oreg.

Filed June 19, 1972, Ser. No. 264,351

Int. Cl. A61c *13/00*

U.S. Cl. 32—10 A **6 Claims**



The denture support frame comprises a rigid bar, the main portion of which is sized and shaped to correspond to the alveolar ridge of the maxilla. At each end this main portion is turned approximately 90° to extend a short distance upwardly and is again turned approximately 90° so as to extend forwardly to form an implant which is driven anteriorally into the posterior tuberosity of the maxillary ridge. In the front or anterior part of the main portion of the bar a plurality of holes are provided in which the top ends of single implant posts are secured. The exposed portion of the bar is spaced a slight distance below the epithelium and provides a permanent inlay-mounted frame for removably supporting an artificial denture. If there is a remaining natural front tooth to which a bridge can be secured, a portion of the frame may be used as a bridge for one side of the jaw only. When the posterior of the alveolar ridge of the maxilla has deteriorated extensively a rear extension is added to the implant to bear in a groove on the pterygoid bone.

3,739,477

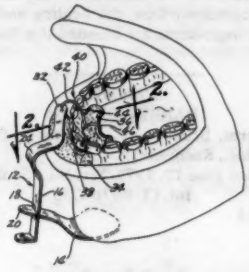
COTTON ROLL HOLDER

Jack E. Strudivant, Oakwood Road, Route No. 4, Ames, Iowa

Filed Dec. 17, 1971, Ser. No. 209,263

Int. Cl. A61c *5/12*

U.S. Cl. 32—35 **8 Claims**



A cotton roll holder includes a support for a labial cotton roll and a lingual cotton roll. The labial support includes a single wire skewer while the lingual support includes a single wire having only one eye portion engaging a cotton roll intermediate its opposite ends. An alternate cotton roll holder supports a pair of oppositely disposed buccal cotton rolls and a lingual cotton roll. A U-shaped portion has laterally extending arches at the outer ends of its legs and return portions are provided on the inner ends of the arches. Skewers are provided on the return portions to hold the lingual cotton roll. An eye on the end of one of the return portions engages the lingual cotton roll intermediate its ends. Skewers on each of the legs of the U-shaped portion hold the oppositely disposed buccal cotton rolls. Each of the cotton roll holders are formed from wire material which may be deformed to selectively position the cotton rolls as desired.

3,739,478

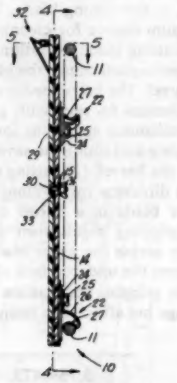
STEERING WHEEL MOUNTED CLIPBOARD

Richard V. Elenberger, 7480 Bradburn Boulevard, Westminster, Colo.

Filed Feb. 8, 1972, Ser. No. 224,564

Int. Cl. B43l *5/00*

U.S. Cl. 33—75 R **4 Claims**



A clipboard for detachable connection to the steering wheel of an automobile to provide a firm base for the preparation of field sketches and notes in a motor vehicle. The clipboard includes a circular base plate having adjustable spring clips secured thereto for snapping over a steering wheel. A circular board is secured to the base plate by means of an axial pivot

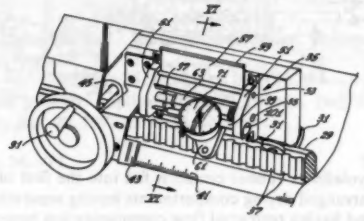
pin to permit the board to rotate on the plate. A spring pressed clamp is provided on the edge of the board for securing papers to the board. An optional feature provides a protractor on the board for use of an engineer in making field sketches.

3,739,479

CAMERA CARRIAGE PRECISION POSITIONING SYSTEM

Delbert T. Blatherwick, Arcadia, Calif., assignor to Acti Products, Inc., Arcadia, Calif.

Filed June 8, 1970, Ser. No. 44,243
Int. Cl. B23q *17/02*; G01b *3/22*
U.S. Cl. 33—125 **2 Claims**



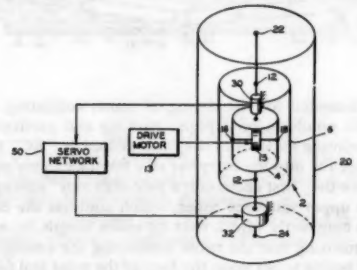
A precision positioning device may be mounted on each of two or more carriages which are movable relative to one another. Such movable carriages are positioned for movement along a track or similar device and a notched bar is fixedly mounted in position relative to the track. Each notch in the bar is situated at a carefully defined, predetermined location. Each positioning device comprises a sub-carriage assembly upon which is pivotally mounted a dial indicator which is actuated by a position indicator pin. An engagement pin is also attached to the dial indicator for selective engagement with notches in the notched bar when the dial indicator is properly positioned relative thereto. A cover is provided which, when closed, causes the dial indicator and engagement pin to be pivoted so as to prevent contact between the engagement pin and the notched bar. When the cover is opened, a biasing spring causes the engagement pin to enter into engagement with the selected notch. The sub-assembly is limited to a predetermined amount of lateral movement when the engagement pin is engaged in a notch and the dial indicator describes the precise position of the carriage relative to the selected notch.

3,739,480

GYRO COMPASSING APPARATUS AND METHOD

Frank A. Hanusek, Glen Rock, and George Galuschak, Hasbrouck Heights, both of N.J., assignors to The Bendix Corporation, Teterboro, N.J.

Filed Mar. 30, 1970, Ser. No. 23,547
Int. Cl. G01c *19/38*
U.S. Cl. 33—226 Z **8 Claims**



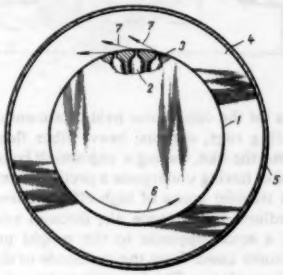
Gyro compassing apparatus and method for automatically providing a reference position for ground based vehicles. A gyro is displaced about its output axis and said displacement is damped until a steady state condition exists at the reference position.

3,739,481

METHOD AND AN ARRANGEMENT FOR DRYING OF DISPERSIONS BY ATOMIZING

Jan Putterlik, Janackovo Nabrezi, Czechoslovakia, assignor to Ceskoslovenska akademie ved, Praha, Czechoslovakia

Filed June 9, 1971, Ser. No. 151,203
Claims priority, application Czechoslovakia, June 15, 1970, 4163/70
Int. Cl. F26b *5/08*
U.S. Cl. 34—8 **8 Claims**



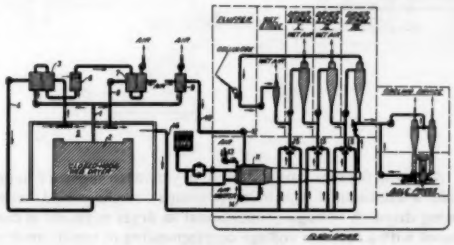
A dispersion of fine material in a liquid is first concentrated in a centrifuge to a paste like consistence. It is subsequently atomized by ejecting it under centrifugal force with a high overpressure into a stream of hot gas, where it is dried and supplied together with the drying gas to a separator.

3,739,482

PROCEDURE FOR DRYING OF CELLULOSE

Bengt Berg, Nacka, Sweden, assignor to Aktiebolaget Svenska Flaktfabriken, Nacka, Sweden

Filed Apr. 13, 1971, Ser. No. 133,598
Int. Cl. F26b *7/00*
U.S. Cl. 34—12 **2 Claims**



Procedure for drying cellulose in a plant consisting of a web dryer, combined with a parallel-working flash dryer in which disintegrated cellulose is caused to pass through a wet stage and through a series of dryer stages and finally taken to a bale press in which procedure the outgoing hot wet air from the web dryer is used for preheating replacement air and also is used for heating ventilation air which partly is discharged into the atmosphere and partly is conducted away for use in the flash dryer for heating the drying air for the various drying stages of said flash dryer.

3,739,483

PROCESS AND APPARATUS FOR CONTINUOUS HEAT TREATMENT OF POROUS HEAVY WEBS

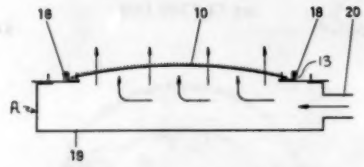
Christian August Meier-Windhorst, Hamburg, Germany, assignor to Artos Dr. Ing. Meier-Windhorst Kommanditgesellschaft, Hamburg, Germany

Filed Mar. 16, 1970, Ser. No. 19,610

Claims priority, application Germany, Mar. 19, 1969, P 19 13 932.3

Int. Cl. F26b *3/00*

U.S. Cl. 34—23 5 Claims



A process for the continuous heat treatment of heavy porus webs including rugs, carpets, heavy fiber fleeces, furniture coverings and the like, having a nap which comprises guiding said webs after having undergone a pretreatment, such as dyeing, to heat transfer zones of high effectiveness by passing a gaseous medium, for instance air, through said webs under pressure in a sense opposite to the weight pressure of the webs, or in some cases, from the underside of the web and additionally from above. The invention also relates to an apparatus for carrying out the process of the invention.

3,739,484

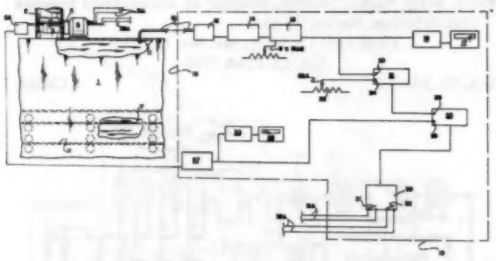
PRESSURE REGULATING SYSTEM FOR A DRYER APPARATUS

Gail A. Wilkening, Beaverton, and Ervin R. Hefley, both of Portland, Oreg., assignors to E. V. Prentice Co., Portland, Oreg.

Filed Apr. 24, 1972, Ser. No. 247,033

Int. Cl. F26b *21/06*

U.S. Cl. 34—51 10 Claims



A system for regulating internal dryer vapor pressure to provide a continuous, optimum pressure for the wood veneer being dried. A voltage proportional to dryer pressure is compared with a settable voltage corresponding to optimum dryer pressure with the potential difference therebetween being detected by a first differential amplifier. The output signal of said amplifier constitutes an error signal to a second differential amplifier. Said second differential amplifier compares said error signal with a voltage proportional to the position of a power operated damper. Switch means in circuit with said second amplifier includes high and low voltage actuated relays which energize a damper motor for operation in opposite directions for opening and closing the damper to decrease or increase dryer pressure. In a balanced condition wherein the dryer is operating within an optimum pressure range the output of said second amplifier is such as to cause the high and low relays to remain open and hence the damper and dryer pressure being static.

3,739,485

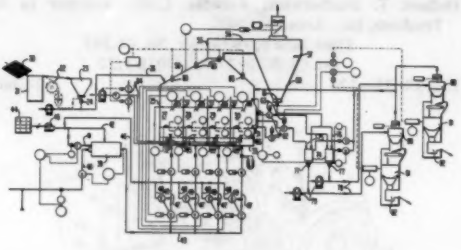
APPARATUS FOR DRYING RUBBER CRUMB AND THE LIKE

John P. Tailor, Box 587, Davenport, Iowa

Filed Dec. 3, 1968, Ser. No. 780,734

Int. Cl. F26b *3/08*

U.S. Cl. 34—57 A 3 Claims



A polyolefin or rubber crumb is fed into the first of plural serially arranged drying compartments having separating partitions and having restricted flow communication beneath the partitions so that gradual downstream compartment-to-compartment product flow will exist. The compartments have opposing inclined side walls for the formation of downwardly tapering product beds in the several compartments and each has a perforated bottom wall through which upwardly flowing drying gas is directed and diffused into the beds to fluidize the beds and sweep over the total surfaces of the rubber crumbs to effectively dry the product increasingly in the downstream direction. Gas and fines are continuously drawn off at the tops of the compartments and the dried product is discharged from the final downstream compartment for weighing and baling. The system contains a built-in fire extinguishing system. An automatic control system is provided.

3,739,486

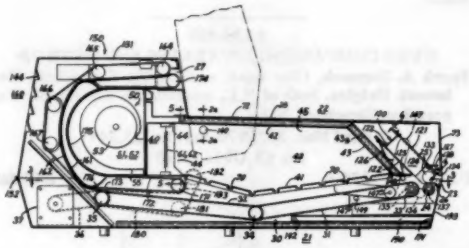
DRYER FOR PHOTOGRAPHIC PRINTS AND THE LIKE

Karl J. Kallenberg, Evanston, Ill., assignor to Apeco Corporation, Evanston, Ill.

Filed Nov. 17, 1971, Ser. No. 199,504

Int. Cl. F26b *19/00*

U.S. Cl. 34—70 25 Claims



A dryer intended for the drying of prints consisting of a photographic emulsion on a paper backing and particularly where the printing paper is of the resin-coated or "RC" type. The prints are fed into the entryway of a box-like frame or enclosure where they first encounter a pair of driven "squeegee" rollers. The upper squeegee roller, which contacts the emulsion side, is constantly wiped, over its entire length, by a wet sponge for insuring that the roller contacting the emulsion is wet when it begins to act upon the face of the print and for insuring that the roller remains clean and perfectly free of deposits. The upper squeegee roller and cooperating sponge are mounted in a removable cartridge which is received in the upper portion of the enclosure. A belt assembly formed of a

set of laterally spaced driven belts transports the prints through the machine. The upper portion of the enclosure, having an associated blower and heating element, blows heated air downwardly upon the face of the prints during transport. At the rear end of the belt assembly the print is reversed through 180° for discharge of the dried prints forwardly upon the top of the machine. The two portions of the enclosure are hinged so that the squeegee rollers are biased together during use but capable of swinging apart for removal of the cartridge and to provide access to the interior.

3,739,487

DRYING APPARATUS

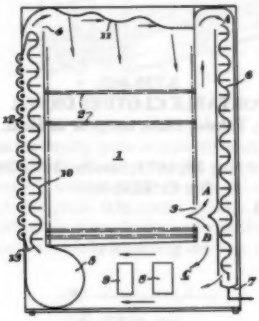
Ronald John Clark, 17 Bream Down Avenue, Weston-Super-Mare, England

Filed May 25, 1971, Ser. No. 146,666

Claims priority, application Great Britain, Jan. 28, 1971, 3390/71; Jan. 28, 1971, 3391/71

Int. Cl. F26b *21/06*

U.S. Cl. 34—77 **7 Claims**



A drying apparatus comprising a cabinet for housing articles to be dried and an air conditioning plant including air cooling means to condense water from water vapor-laden air drawn in from the cabinet by a circulating fan and means to heat the air recycled back into the cabinet, the air cooling means and air heating means being the evaporator and condenser respectively of a refrigeration plant, a metered part of the circulating air only being passed over the evaporator by a second fan and part of the heat produced by the condenser being lost externally to the apparatus.

3,739,488

HEATED SAND DRYER

Amir U. Khan, Okemos, Mich., assignor to The United States of America as represented by the Secretary of State and the Secretary of Agriculture, Washington, D.C.

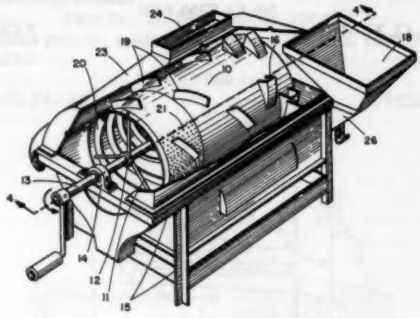
Filed Nov. 26, 1971, Ser. No. 202,120

Claims priority, application Philippines, Nov. 26, 1970, 11989

Int. Cl. F26b *13/26*

U.S. Cl. 34—95 **6 Claims**

A dryer for agricultural crops, such as rice, corn, sorghum, or the like is disclosed in which the crop to be dried is mixed with heated sand in a mixing zone of a rotating cylinder, then transferred to a drying zone of the cylinder, and finally to a separating zone. The sand is returned to a pan beneath the cylinder to be reheated.



3,739,489

PHOTOGRAPHIC FILM PROCESSING INTERVAL TIMING DEVICE

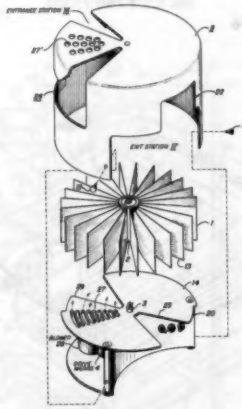
Frederick W. Macone, Carlisle, Mass., assignor to Avant Incorporated, Lincoln, Mass.

Continuation of Ser. No. 764,772, Oct. 3, 1968, abandoned.

This application Aug. 9, 1971, Ser. No. 170,357

Int. Cl. F26b *11/02*

U.S. Cl. 34—109 **4 Claims**



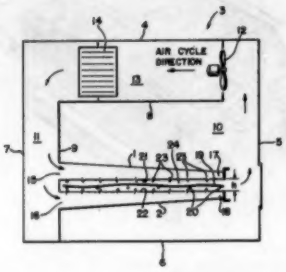
This disclosure is drawn to a timing device having an entrance station, an exit station and a plurality of movable compartments for conveying exposed film being developed between said stations for a predetermined timed interval.

3,739,490

ORIFICE PATTERN FOR JET DRYERS

Gilbert L. Comstock, Longview, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.

Filed June 1, 1971, Ser. No. 148,363
Int. Cl. F26b 9/00
U.S. Cl. 34—162 5 Claims



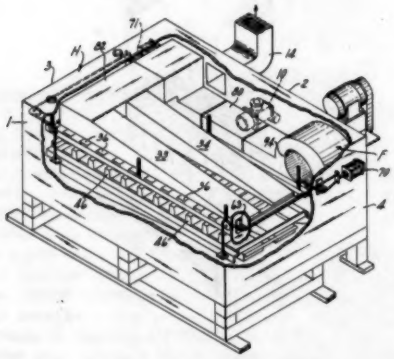
An impinging jet air dryer generally utilizes a plurality of opposed jet dryer boxes having a plurality of spaced orifices therein. Suitable formulas are disclosed which offers a method of selecting the optimum orifice pattern for repeating row units which result in a uniform heat transfer over the entire surface of the sheet material as well as maximuzing the overall rate of heat transfer to the sheet material. A means for providing a uniform moisture profile across the sheet material is disclosed which allows more air to be supplied to the sheet material toward the cooler end of the jet dryer boxes. This can be done by varying either orifice spacing or orifice size. The combination of the above-mentioned orifice placement methods gives a jet dryer box which provides the fastest most uniform drying for an impinging jet air dryer.

3,739,491

HIGH VELOCITY AIR WEB DRYER

Ralph W. Creapo, Roy E. Downham, both of Neenah, Wis.; Jack F. Eckelaert, Depere; John W. Frost, Appleton, and David M. Klein, Kaukauna, all of Wis., assignors to TEC Systems, Inc., De Pere, Wis.

Filed Sept. 22, 1971, Ser. No. 182,639
Int. Cl. F26b 13/00
U.S. Cl. 34—156 17 Claims



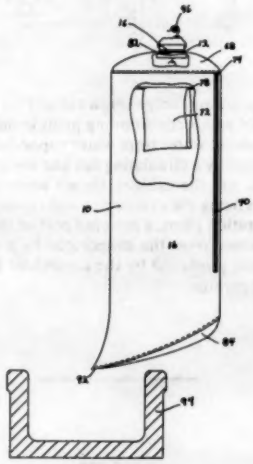
A dryer for drying a running web by causing high-velocity, heated air to be impinged on the running web. High-velocity nozzles are located on opposite sides of the running web and arranged transversely to the direction of the web movement, and one set of nozzles is movable relative to the other set so as to readily vary the distance of the air nozzles from the web. The transversely arranged nozzles are supported on the air supply ducts and thus form an integral unit which is not subject to warpage and, consequently, the precise spacing of the nozzles from the web can be maintained. Means are provided for accurately and easily adjusting the position of the movable set of nozzles relative to the other set of nozzles. The device also includes a wall having a slideable seal and located between the inlet side of the air supply fan and one side of the web whereby the entire arrangement can be made very compact while at the same time insuring that the web will not be pulled into the air supply fan. An air make-up door is provided for controlling the source of make-up air and which also serves to keep the doors cool. The device also includes an easily replaceable gasket in the air plenum which eliminates the necessity of dismantling the air duct to replace the seal.

3,739,492

PORTABLE CLOTHES DRYER

Elgin C. Brooks, Toledo, Ohio, assignor to Helb, Inc., Toledo, Ohio

Filed May 26, 1971, Ser. No. 147,074
Int. Cl. F26b 9/00
U.S. Cl. 34—163 3 Claims



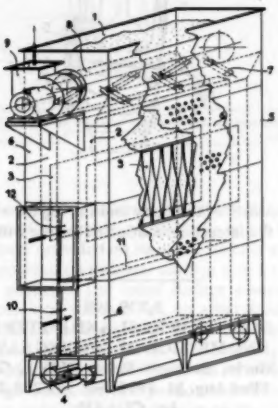
A portable dryer for clothes or the like having an inflatable bag made from a material which is impervious to air and moisture, in which are placed the clothes or other articles to be dried, and a motor-driven fan within the bag for inflating the bag and blowing a current of air downwardly over the clothes to dry the same rapidly, thus maintaining the bag in the fully inflated state, out of contact with the articles being dried, without any supporting framework.

3,739,493

GRAIN DRYING APPARATUS

Edmond Nivon, La Pergola 26, Saint Didier-de-Charpey, France

Filed May 4, 1971, Ser. No. 140,100
Int. Cl. F26b 17/12
U.S. Cl. 34—167 6 Claims



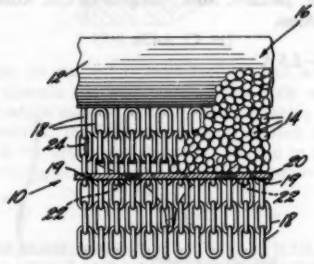
An appratus for drying grain in a continuous operation comprising an upper feeding box into which grain is fed, and a vertical passageway in communication with the feeding box and through which the grain falls under gravity. Means are provided for sucking air through the grain during its fall in the passageway and for axially inversing the flow of the grain during its fall.

3,739,494

DISCHARGING DEVICE FOR CONTAINERS IN WHICH PARTICULATE MATERIAL IS TREATED WITH GASES IN COUNTER-CURRENT FLOW

Erik Qvale Dahl, and Ole Hustvedt, both of Kristiansand S., Norway, assignors to Elkem A/S, Oslo, Norway

Filed Aug. 17, 1971, Ser. No. 172,494
Int. Cl. F26b 17/12
U.S. Cl. 34—174 3 Claims



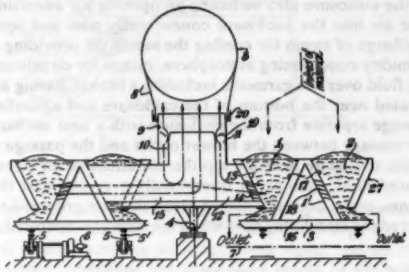
A discharge device for containers in which lumpy material or agglomerated bodies are treated with gases in counter-current flow is disclosed. The device comprises a holding chamber comprising trap door in spatial relation to openings in the bottom of the discharge apparatus and chains as sidewalls of the holding chamber.

3,739,495

APPARATUS FOR COOLING HOT MATERIAL IN BULK

Walter Cremer, and Walter Stanke, both of Essen, Germany, assignors to Head Wrightson and Company, Limited, Yarm, Yorkshire, England

Filed Dec. 21, 1970, Ser. No. 100,276
Claims priority, application Germany, Dec. 23, 1969, P 19 64 323.3
Int. Cl. F26b 11/08
U.S. Cl. 34—187 9 Claims



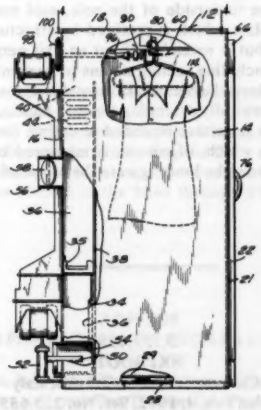
Apparatus for the cooling of iron ore sinter or other hot material in bulk comprising a frame structure mounted to revolve about a vertical axis, at least two concentrically arranged annular troughs supported on said frame structure, each of which troughs is of downwardly tapering cross-section, said troughs being of open formation at the top and bottom, means for introduction of material to be cooled into the open top of each trough as it revolves, a platform on said structure and positioned to receive material as it discharges therefrom, stripping means by which material is discharged from the platform and means for introduction of cooling medium through a side wall of each trough.

3,739,496

STEAM AIR CABINET FINISHER

Norman A. Buckley, Wauwatosa, and Peter D. Rasmussen, Cedarburg, both of Wis., assignor to McGraw-Edison Company, Elgin, Ill.

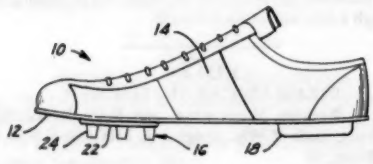
Filed Mar. 24, 1971, Ser. No. 127,471
Int. Cl. F26b 19/00
U.S. Cl. 34—210 13 Claims



A steam air finisher having an enclosure defining cabinet including a door that can be opened to provide access to the enclosure, a garment support rack or holder and means mount-

ing the rack to move between an outer loading and unloading position generally outside the cabinet enclosure and an inner operating position and linkage connecting the door to the rack that causes such rack movement upon movement of the door between its open and closed positions, whereby garments to be finished are typically hung on conventional hangers which in turn are hooked on the rack and carried thereon, shaker mechanism located within the cabinet which cooperates with the rack when the latter is in the inner position to mechanically reciprocate the hanger crosswise to the normal plane of the hung garment, steam inlet means located near the bottom of the enclosure also including an opening for admitting outside air into the enclosure concurrently with and upon the discharge of steam for cooling the steam yet providing a high humidity conditioning atmosphere, means for circulating drying fluid over the garments including a blower having an inlet located near the bottom of the enclosure and an outlet to a passage separate from the enclosure with a heat exchanger in the passage between the blower outlet and the passage return to the enclosure near the top thereof effective for circulating heated fluid, such as air downwardly over and past the garments, and a normally closed bleed damper provided to vent part of the circulating fluid when the blower is operated.

3,739,497
ATHLETIC SHOE
Bruce M. Cameron, 5220 Travis, Houston, Tex.
Filed Mar. 15, 1971, Ser. No. 123,945
Int. Cl. A43b *00/00*; A43c *15/00*
U.S. Cl. 36—2.5 AG **10 Claims**

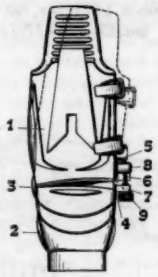


An athletic shoe having a sole with an upper secured thereto and a turntable having traction means thereon being rotatively mounted to the underside of the sole, said turntable being secured to a plate which is retained by structure associated with said sole but is rotatable about an axis perpendicular to said sole and including sealing means to prevent the entry of deleterious material between said turntable and said sole and a heel having rearwardly extending traction means.

This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

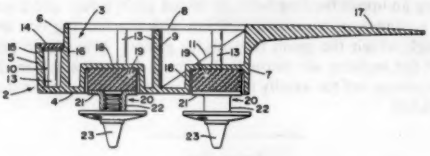
3,739,498
SKI BOOT
Vanio Tessaro, Caerano S. Marco, Treviso, Italy
Filed Feb. 4, 1972, Ser. No. 223,655
Int. Cl. A43b
U.S. Cl. 36—2.5 AL **6 Claims**

A ski boot formed of a body, a leg located above the body and so mounted to the body as to permit adjustment of the lateral inclination of the leg with respect to the body, and an adjusting mechanism mounted to the body and the leg and



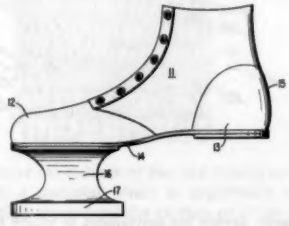
located exteriorly of the body and the leg for effecting the adjustment of the lateral inclination of the leg with respect to the body.

3,739,499
MOLDED GOLF SHOE HEEL AND INSTEP STRUCTURE AND METHOD OF MAKING SAME
Eugene P. Morin, Brackett Road, RFD 1, Gorham, Maine
Filed Aug. 31, 1972, Ser. No. 285,249
Int. Cl. A43b
U.S. Cl. 36—2.5 AH **10 Claims**



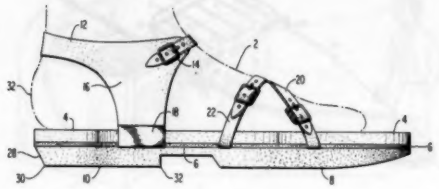
A golf shoe heel filler having a plurality of spike retainers secured to the outer face of a plurality of resilient pads mounted on the bottom of the heel filter. The body is substantially hollow and made of hard, heat-resistant plastic. Each of the pads is compressed and held in place by a heel injection molded to the filler.

3,739,500
EXERCISE SHOE
Paul L. Cox, Jackson, Miss., assignor to Cox Athletics, Inc., Jackson, Miss.
Int. Cl. A43b *3/10*
U.S. Cl. 36—2.5 A **10 Claims**



A flexible pillar sole member is provided for attachment to the front portion of a shoe thereby causing the wearer to stand, walk and run without touching his heels to the ground. The resultant shoe provides for dynamic exercise.

3,739,501
FOOTWEAR ARTICLE AND METHOD FOR FACILITATING WALKING
John P. Barrett, Jr., 40 Fairfax St., Burlington, Mass.
Filed June 23, 1972, Ser. No. 265,913
Int. Cl. A43b *3/12*
U.S. Cl. 36—11.5 **14 Claims**



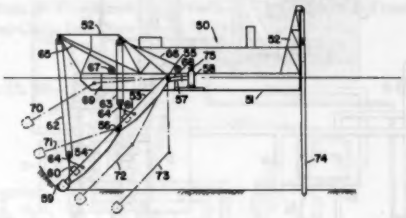
Rheumatoid arthritic patients and others are enabled to walk by means of an article of footwear which has an unbendable platform provided on its upper surface with padding material and provided on its lower surface with a tread having heel and sole portions. The tread surface assumes a stable non-rocking condition when at rest on a flat ground surface. The heel portion has the entirety of its ground-contacting surface located forwardly of the anatomical rear edge of the patient's foot to reduce impact loading of the forefoot at the foot flat portion of gait; and, the sole portion is inclined forwardly and upwardly to reduce the shear forces on the patient's foot during the push-off portion of gait.

3,739,502
FOOTWEAR, ITS METHOD OF MANUFACTURE, AND WELT MATERIAL THEREFOR
Horace R. Auberry, Waynesville, N.C., assignor to Ro-Seach, Incorporated, Waynesville, N.C.
Continuation-in-part of Ser. No. 861,429, Sept. 26, 1969, abandoned. This application Aug. 25, 1971, Ser. No. 174,893
Int. Cl. A43b *13/18*
U.S. Cl. 36—17 R **9 Claims**

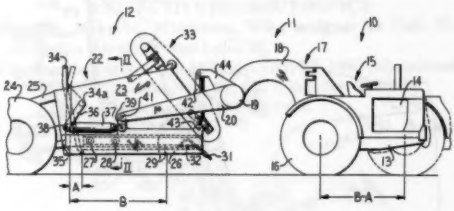
Footwear, its method of manufacture, and welt material therefor, wherein the welt material is a strip of moldable elastomer which may include for better stitching a strand of textile material, the strip being first secured such as by stitching to the upper and thereafter molded to form a welt bonded to the upper and to the thread of the stitching.

3,739,503
HYDRAULIC DREDGE HAVING ARTICULATED LADDER AND SWELL COMPENSATOR
George P. Barker, "Belmar," 85 Sauchenbush Rd., Kirkcaldy, Scotland, and Cameron E. McKay, 1632 Coronado Way, Burlingame, Calif.
Filed Aug. 11, 1970, Ser. No. 62,962
Int. Cl. E02f *3/88*
U.S. Cl. 37—67 **7 Claims**

A deep-digging floating hydraulic dredge having an articulated ladder with two or more sections pivoted together for relative swinging movement in a vertical plane only with a cutter head or other digging device and pump pipeline supported by the ladder. For sea-going use the dredge may have sounding means for determining instantaneously the height of the hull above the bottom of the water on which the hull is floating, angle sensing means for determining instantaneously the fore-and-aft angle to the horizontal of the dredge hull, and control means receiving an input depth signal and an input angle signal controlling the suspension length of the articulated ladder sections and accommodating it to swells in the water level on which the hull floats.



3,739,504
TRACTOR-SCRAPER WITH MOVEABLE FLOOR
Lawrence J. Miller, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed July 19, 1971, Ser. No. 163,930
Int. Cl. E02f *5/00*
U.S. Cl. 37—124 **8 Claims**

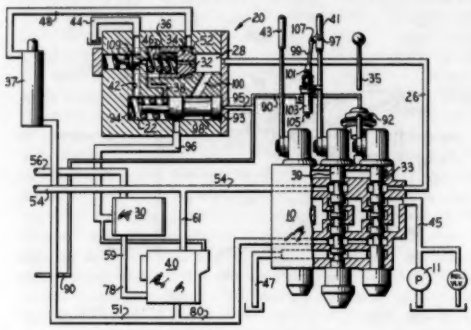


A tractor-scraper combination includes a scraper having a bowl supported by a rear axle, and a floor slidable on the bowl and attached to and supported by hitch means on the tractor. Power means is provided for sliding the floor and tractor forwardly with respect to the scraper bowl and axle, providing an opening in the bottom of the bowl through which material is expelled.

3,739,505
SYSTEM FOR AUTOMATIC OSCILLATION OF AN APRON TIP
Leon E. Hicks, Joliet, and Henry J. Jessen, Wilmington, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Dec. 14, 1970, Ser. No. 97,779
Int. Cl. E02f *9/20*
U.S. Cl. 37—126 AD **6 Claims**

A hydraulic control system for an articulated scraper apron

having an articulated apron tip which provides automatic oscillation to the apron tip and thereby facilitates the closing

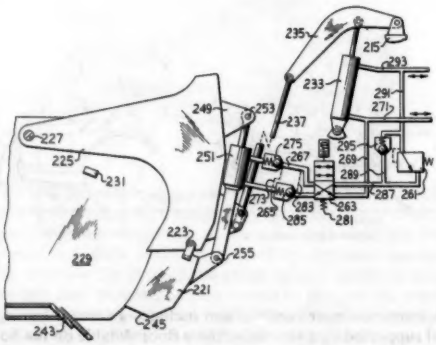


of the apron through material which would otherwise prevent the apron from closing completely.

3,739,506
SCRAPER APRON CLOSING MECHANISM

Gene R. Klett, Joliet, Ill.; Joseph Kokaly, Phoenix, Ariz.; Norman E. Risk, Peoria, and Roger M. Smith, Joliet, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Continuation of Ser. No. 831,500, June 9, 1969, abandoned.
This application Nov. 8, 1971, Ser. No. 196,817
Int. Cl. E02f *3/75, 3/87*
U.S. Cl. 37—126 AA **5 Claims**



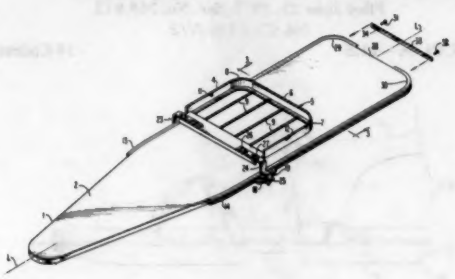
An articulated scraper apron in which the apron lip is pivoted to the support arms. The apron and arms are controlled by fluid actuators such that the apron lip actuator is controlled responsive to a predetermined pressure in the support arms actuator.

3,739,507
CLOTHES IRON REST FOR IRONING BOARDS

Francisco Bilbao, 5501 S.W. 6 St., Miami, Fla.

Filed June 30, 1971, Ser. No. 158,211
Int. Cl. D06f *81/00*
U.S. Cl. 38—107 **2 Claims**

A clothes ironing rest including a platform for a clothes iron having means for at least partially restricting movement of the iron on the platform, and means for mounting the platform above and substantially parallel to an ironing surface such that the platform is movable in a direction parallel to the longitu-

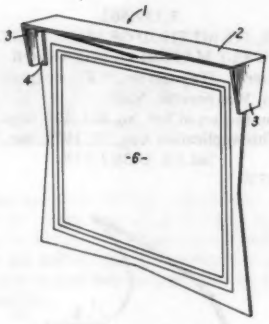


dinal axis of the ironing surface. The clothes iron rest is useful in domestic and commercial clothes ironing operations.

3,739,508
DISPLAY DEVICE

George Albert Lyles, Stanmore, England, assignor to Trendmark Limited, London, England

Filed Apr. 6, 1971, Ser. No. 131,634
Claims priority, application Great Britain, Apr. 17, 1970, 18,530/70
Int. Cl. G09f *3/18*
U.S. Cl. 40—10 **6 Claims**



A mounting bracket for a showcard, the bracket having arms which converge towards their free ends and cooperate with similarly shaped edge portions of the showcard which is introduced between the arms by flexing the bracket. The showcard has a number of such edge portions to allow it to be variously engaged with the bracket so that printing on it will be properly displayed no matter whether the bracket is attached to an upright surface or stands on or depends from a horizontal surface.

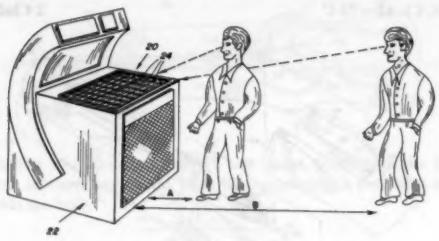
3,739,509
TITLE DISPLAY FOR A COIN OPERATED PHONOGRAPH

Robert A. O'Neil, Glen Ellyn, Ill., assignor to The Seeburg Corporation of Delaware, Chicago, Ill.

Filed Sept. 10, 1971, Ser. No. 179,280
Int. Cl. G09f *19/12*
U.S. Cl. 40—64 R **6 Claims**

A title display for a coin operated phonograph provides easy access to record title strips and selective viewing of the record title strips. A matrix of individual frames, each of which is formed from raised ribs and borders a title strip, prevents the title strips from being visible to persons who are not im-

mediately adjacent the coin-operated phonograph. Easy access to the record title strips for removal or replacement is provided by mounting the supporting assembly for the matrix of frames securely to the underside of a horizontally disposed cabinet lid, which may be raised by means of a hinge attached to the phonograph at the back edge of the lid (i.e., the edge



furthest away from the front of the coin-operated phonograph). Removal of the title strips is effected by raising the cabinet lid and pivoting a program holder carrying the title strips upwardly 180° away from the supporting assembly until the title strips are facing the front of the coin-operated phonograph, thereby providing easy access to the title strips.

3,739,510

CONTROL DEVICE FOR SELECTIVELY REMOVING AND RETURNING ADJACENT ITEMS CONTAINED IN A MAGAZINE

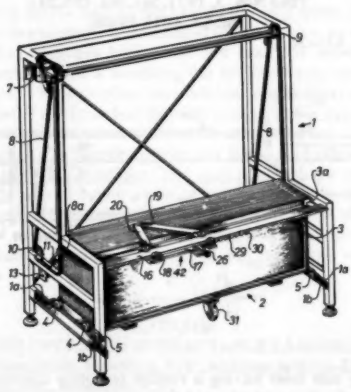
Carl-Eric Ohison, and Eric Oscar Ohlson, both of Solna, Sweden, assignors to Swift & Company, Chicago, Ill.

Filed Oct. 8, 1970, Ser. No. 79,133

Claims priority, application Sweden, Dec. 23, 1969, 17908/69

Int. Cl. B42f *17/00*

U.S. Cl. 40—78.05 **10 Claims**



A control device for selectively removing a number of adjacent items contained in a magazine and returning them thereto comprises a movement transfer mechanism for displacing the magazine relative to a fixed stand and a lift which upon actuation dependent upon the position of the magazine relative to the stand engages and lifts a desired item. The movement transfer mechanism is displaceable between different positions along a guide forming an angle of substantially 90° with the direction of movement of the magazine and comprises a handle which is pivotable around a horizontal shaft and adapted to take a desired number of different positions along the guide. The handle is also adapted for actuating a switch which, dependent upon the direction of pivoting the handle starts or reverses a driving motor for the lift engaging one item. The handle is mounted on a carriage guide bar and a support arm and together with the carriage form a movement transfer member of substantially triangular shape.

3,739,511

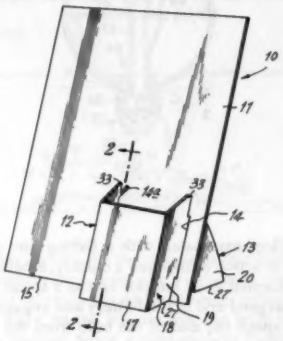
DISPLAY UNIT

William B. Freedman, New York, N.Y., assignor to Freedman Cut-Outs, Inc., New York, N.Y.

Filed Dec. 1, 1971, Ser. No. 203,645

Int. Cl. G09f *1/00*

U.S. Cl. 40—124.1 **6 Claims**



A display unit comprises a display card with an upwardly open container at the front of the display card having side walls which project through slots in the display card and have integral extensions disposed rearwardly of the display card to form an easel for maintaining the display card and container substantially erect on a supporting surface.

3,739,512

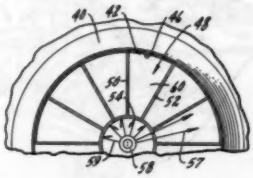
REFLECTIVE READOUT DEVICE

Albert L. Ruppert, Middleton, Wis., assignor to Oak Electro/Netics Corp., Crystal Lake, Ill.

Continuation of Ser. No. 868,854, Oct. 23, 1967, abandoned. This application Nov. 19, 1971, Ser. No. 200,624

Int. Cl. G09f *09/00*

U.S. Cl. 40—130 K **3 Claims**

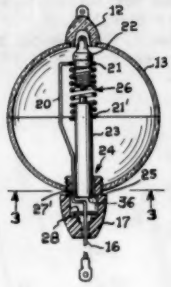


A display device including a body having a plurality of light producing or color changing areas. The light producing or color changing areas are arranged, relative to each other, to provide an information display, for example an alpha-numeric readout, or a visual indication of the operational characteristics of a machine or instrument. Each light producing area includes a source of light or color copy and means for spreading, via reflective surfaces, the light or color.

ERRATUM

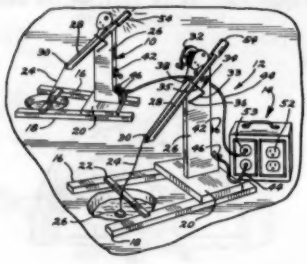
For Class 42—75 C see:
Patent No. 3,739,515

3,739,513
FISHING FLOAT
George M. Durham, Jr., 6931 Luck, Dallas, Tex.
Filed Oct. 26, 1970, Ser. No. 83,785
Int. Cl. A01k *93/00, 97/12*
U.S. Cl. 43—17 10 Claims



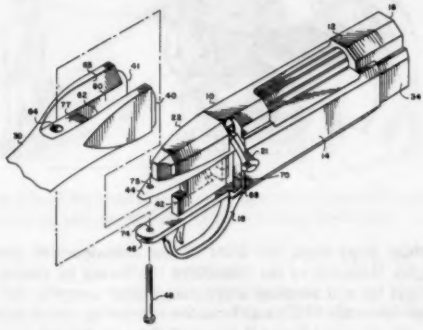
A fishing float associated with a fishing line comprising a hollow body in which is disposed a battery, a bulb, and a shaft. The shaft is formed at its interior end as a spiral spring which encloses a marginal end of the battery and engages the bulb in a manner to space the end of the bulb from the battery. The other end of the shaft extends through a seal member to the exterior of the float and has means thereon for connecting the fishing line thereto. A pull on the line moves the shaft to move the bulb into contact with the battery to light the bulb and signal the bite of a fish.

3,739,514
FISHING DEVICE
Erling Odney, 2604 W. Oak St., Sioux Falls, S. Dak.
Filed Nov. 12, 1971, Ser. No. 198,370
Int. Cl. A01k *97/12*
U.S. Cl. 43—17 4 Claims



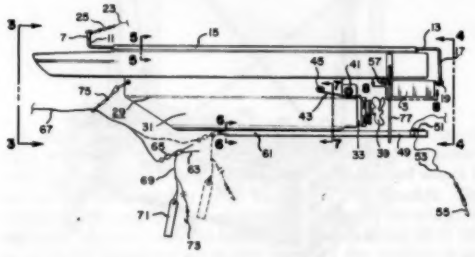
A fishing device including a support stand for positioning a fishing line in a fishing area and a signaling system indicating the presence of a fish striking the bait. The signaling system provides an audible signal which may be actuated by any one of several similar support stands while each individual stand may be provided with a visual signal. The fishing device support stand is comprised of a pair of legs outwardly extending from a base to which a support tower is secured. From the support tower, a generally downwardly extending fishing line supporting member extends to a position generally over the fishing area. The signaling system is actuated by movement of a normally slack fishing line from the slack position to a relatively taut position thereby moving a lever arm of a switch causing connection of electrical contacts.

3,739,515
SHOULDER STOCK AND RECEIVER COMBINATION FOR FIREARMS
Homer E. Koon, Jr., Gainesville, Tex., assignor to Firearm Development, Inc., Denton, Tex.
Filed Apr. 7, 1971, Ser. No. 132,046
Int. Cl. F41c *23/00*
U.S. Cl. 42—75 C 2 Claims



A receiver for a firearm includes broad area recoil surfaces at the rear thereof, and a shoulder stock having a pair of large area recoil shoulders is attached to the receiver so that the recoil shoulders abut against the recoil surfaces of the receiver. Substantially all of the mass of the firearm other than the shoulder stock is disposed forward of the receiver recoil surfaces, so that recoil is reduced. The shoulder stock is readily detachable, whereby easy access can be had to the trigger mechanism.

3,739,516
LINE CONTROLLABLE BOAT
John H. Holling, 416 Grove Avenue, Ukiah, Calif.
Filed Nov. 3, 1971, Ser. No. 195,241
Int. Cl. A01k *89/00*
U.S. Cl. 43—26.1 9 Claims

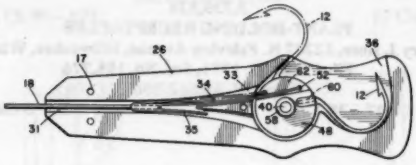


A toy size boat having a rudder remotely controllable by means of a line and adapted for use in carrying a baited fish line to remote locations from shore or for trolling purposes.

3,739,517
RETRACTABLE FISH HOOK APPARATUS
George H. Schleif, 4030 Chamoune, San Diego, Calif.
Filed Dec. 6, 1971, Ser. No. 204,964
Int. Cl. A01k *83/02*
U.S. Cl. 43—35 4 Claims

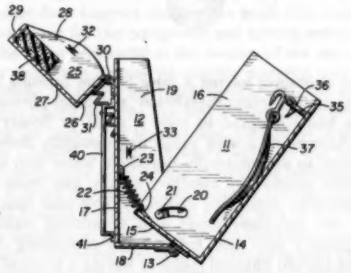
A retractable fish hook apparatus comprising a body with a fish hook pivotally positioned therein. A movable line attached to the body and fish hook and to the fishing line, allows pull on the fishing line in combination with a fish biting the body to move the hook portion of the fish hook outwardly

from the body in the direction of movement of the body and into the path of movement through the water. A resilient spring in the body causes the fish hook to hold in the retracted



position when moving through the water, but allows the fish hook to move outwardly from the body when a fish bites and holds the body.

3,739,518
FISHING TACKLE BOX
Raymond J. Ziegler, 16185 W. 14th Place, Golden, Colo.
Filed Aug. 16, 1971, Ser. No. 172,053
Int. Cl. A01k *97/06*
U.S. Cl. 43—57.5 R **3 Claims**

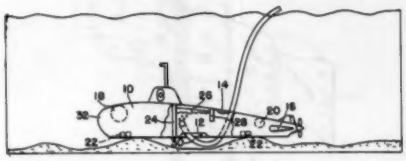


A fishing tackle box or the like comprising front and rear box members hingedly connected at their bottoms, an exterior cover which engages both front and rear box members in closed position, and a mounting bar for fish hooks and other equipment. The mounting bar extends longitudinally of the front panel of the front box member near its upper edge, and a resilient pad in the cover overlies the mounting bar when the cover is closed to thereby retain said hooks and other equipment in intended positions. The rear panel of the rear box member is provided with a pair of spaced apart clips fastened at their ends to the said panel and spaced from the panel for reception of the belt of a user. A slot and pin arrangement limits relative pivotal movement of the front and rear box members.

3,739,519
PRESSURE OPERATED RETRACTABLE LANDING GEAR
Romano Garabello, Brooklyn, N.Y., assignor to Rom-Air International, Inc., Brooklyn, N.Y.
Filed Dec. 2, 1971, Ser. No. 203,971
Int. Cl. A63h *27/02*
U.S. Cl. 46—78 **6 Claims**

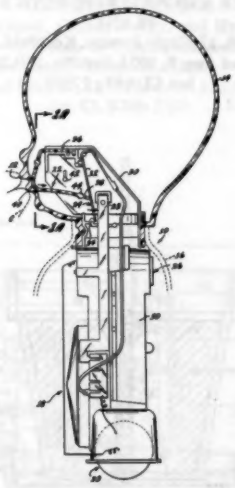
The present invention provides a retractable landing gear system for model aircraft comprising a double-acting, fluid-pressure-operated piston and cylinder means, said piston being connected to a link which link is pivotally connected to a pivoted landing gear, the ends of the said connecting link being guided in straight-line movement by a pair of opposed parallel slots, a reservoir for the fluid under pressure, means for supplying the pressurized fluid to the piston and cylinder means controlled by servo-operated valve means to extend and retract the landing gear.

3,739,520
DIVING TOY
Samuel E. Hill, Jr., 142 Adams St., Waltham, Mass.
Filed June 29, 1972, Ser. No. 267,456
Int. Cl. A63h *23/04*
U.S. Cl. 46—94 **8 Claims**



A diving toy having no moving parts but having a special bulkhead configuration receiving air from a pump, whereby the toy will tilt downwardly and sink under influence of loss of said air and when on the bottom will rise from the bottom to the top, the motion being continuous as long as the air is pumped to the interior of the diving toy.

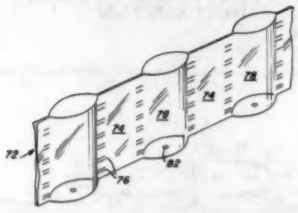
3,739,521
STARTING SWITCH FOR TOYS
James H. Fox, Torrance, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Nov. 30, 1971, Ser. No. 203,239
Int. Cl. A63h *33/26, 5/00*
U.S. Cl. 46—232 **4 Claims**



A doll with a phonograph that plays each time the lip portion is depressed, the doll being constructed to enable large dimensional tolerances in the location of the switch that is operated by depressing the lips, and the phonograph being constructed to sequentially play different recordings. An electrical switch that turns on the phonograph when the lips are depressed includes a relaxation member extending from the lips to a switch contact, to push the contact against another

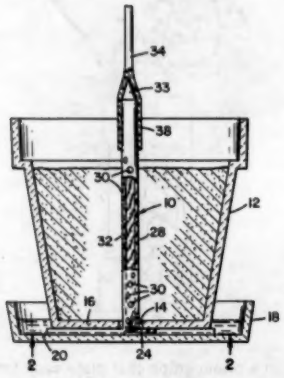
when the lips are depressed. The relaxation member is constructed of material that soon relaxes under back pressure of the switch and allows the switch to open.

3,739,522
HORTICULTURAL CELL SYSTEM AND METHOD OF MANUFACTURE
George Greenbaum, 790 Boylston St., Boston, Mass.
Filed July 22, 1971, Ser. No. 165,277
Int. Cl. A01g 9/02
U.S. Cl. 47—34.13 7 Claims



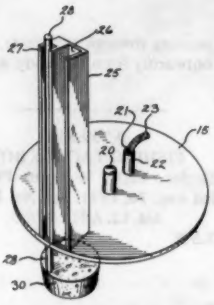
A cell system for use in horticulture comprises a belt of sheet material such as plastic, folded in half longitudinally and having its two layers sealed along lines transverse to and spaced apart along the belt. The sheet forms a series of spaced web portions in which the layers are contiguous, and an alternating series of cells each suitable for receiving the root system of a mature plant. Cover means for the mouths of the cells may comprise a cover strip separate from the belt, or edge portions of the belt may be folded over the mouths. The seals in the web portions may be discontinuous and localized to allow water and nutrient to flow between the cells; or unsealed edge portions of the webs may form a liquid conduit between cells.

3,739,523
PLANT HOLDER AND WATERING DEVICE FOR POTTED PLANTS
Jon Martin Tuffli, 17 Maple Avenue, Kentfield, Calif.
Filed Aug. 5, 1971, Ser. No. 169,293
Int. Cl. A01g 27/00
U.S. Cl. 47—38.1 2 Claims



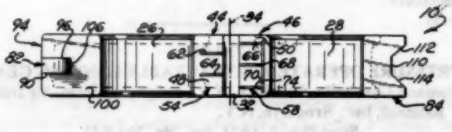
A device for supporting a potted plant as well as supplying moisture to it comprises a base member, a tubular member extending upright from it and an upper support member that is removably attached to the tubular member. The base member is adapted to be positioned below the bottom of the pot which is normally located in a water filled vessel. A wick member within the tubular member draws water upwardly through it and passes through sidewall openings to water the surrounding soil.

3,739,524
PLANT-HOLDING RECEPTACLES
Harry J. Rose, 12247 N. Fairview Avenue, Milwaukee, Wis.
Filed June 23, 1971, Ser. No. 155,776
Int. Cl. A01g 27/00
U.S. Cl. 47—38.1 3 Claims



A plant container having a false bottom forming a water-containing compartment therebelow, the upper portion of said container being adapted to have a plant or flower planted therein, there being a wick projecting upwardly through said false bottom to automatically introduce water into said container upper portion by capillary action, and there being a channel member extending upwardly from said false bottom adjacent the container inner wall permitting water to be poured directly into said lower water-containing compartment, said upright channel member having a vertically-movable rod projecting therefrom with a float element on its lower end within said water compartment, said rod visually indicating when water should be added to said container.

3,739,525
PLANT SUPPORT DEVICE
Richard A. Rybak, Dunedin, Fla., assignor to The Hansen Manufacturing Company, Cleveland, Ohio
Filed Jan. 3, 1972, Ser. No. 214,775
Int. Cl. A01g 17/14
U.S. Cl. 47—44 7 Claims



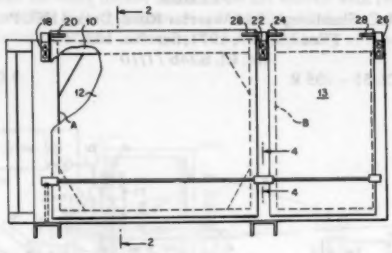
An improved plant support device or clip is adapted to be utilized with an upright support strand of wire or twine. The clip includes a pair of arcuate arms which are closed to encircle the stem of the plant. As the arms are closed, the support strand is gripped by a clamp which holds the clip against movement along the strand. The clamp has gripping surfaces with offset elongated clamp ribs which securely grip the strand. A retaining rib extends transversely to the clamp ribs to prevent the strand from moving along the clamp ribs and becoming disengaged from the clamp. The arms of the clip are held in the closed position by a latch which can be readily released by resiliently deforming one of the clip arms.

3,739,526

UP AND OVER DOOR MOUNT

George E. Nelson, 201 Mountain Avenue, North Caldwell, N.J.

Filed May 26, 1971, Ser. No. 146,909
Int. Cl. E05d *15/38*
U.S. Cl. 49—197 12 Claims



An up and over door mount particularly for a frame for equipment such as a motor generator set, a refrigeration unit and the like for transport equipment including vehicles such as refrigerated trailers and containers used in the trucking and shipping industry. It includes a suitably supported upstanding projection or door support rail, e.g., an angle iron constituting part of the frame for the equipment and having one arm vertical and the other horizontal at the bottom of the vertical arm. The door comprises a panel of suitable material such as reinforced plastic in which the reinforcement can be expanded metal, glass fibers, and the like which has a rearward projection along the upper end thereof and, preferably, a forwardly extending projection on the lower portion of the door. The rearward projection rests on the upstanding projection when the door is in the closed or normal upright position and retaining means located in front of and above said upstanding projection a distance at least equal to the thickness of the door are provided to prevent the door from being moved off the upstanding projection while permitting it to be swung from vertical to horizontal position and then moved bodily inwardly, i.e., over the top. The distance of inward travel of the door is preferably restricted, e.g., by engagement of the forward projection with the retaining means. In this position the door is out of the way so that free access to the interior of the frame is provided. Preferably guide rails are provided in the frame to guide the door during its inward motion so that it does not become canted. The framework may provide one or more access openings to be covered by such up and over doors and the completed frame may be suitably mounted on a vehicle or container, e.g., by suspension from the underside of the chassis or floor of the vehicle or by resting on the upper side of the floor, depending upon circumstances and the structure of the vehicle or container. Suitable means to secure the frame to the vehicle body or chassis may be provided so as to leave a storage space for the door between the frame and the part of the vehicle where the frame is suspended. Where the frame rests upon the floor of the vehicle a top wall is secured to the frame a sufficient distance above the door support rail to protect the equipment within the frame from dust, dirt, water, etc. and to provide the door storage space beneath it.

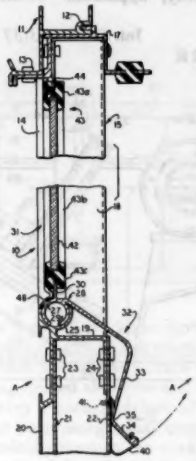
3,739,527

KNOCKOUT WINDOW FOR VEHICLE

Theodor C. Schubach, Bonita, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Filed Nov. 26, 1971, Ser. No. 202,504
Int. Cl. E06b *7/18*
U.S. Cl. 49—466 6 Claims

A knockout window for a vehicle, such as a bus or mass transit car, has a surrounding marginal seal and is held in closed, sealing position between a fixed retaining element mounted on one side of a window frame structure, and an eccentric element provided on a rocker mounted on the other side of the window frame structure. Actuating means having a substantial mechanical advantage are provided for swinging the rocker in a direction to tilt the rocker so as to swing the eccentric element outwardly, thereby forcing the portion of the window with which it is in engagement outwardly free of the eccentric element and the frame structure, whereupon the window either falls free, or may be easily pushed open, allowing escape through the window opening.

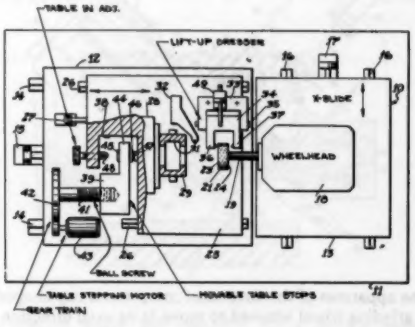


3,739,528

GRINDING MACHINE

Edward G. Robillard, Cherry Valley, and Herbert R. Uhtenwoldt, Worcester, both of Mass., assignors to Cincinnati Milacron-Heald Corp., Worcester, Mass.

Filed May 17, 1971, Ser. No. 143,930
Int. Cl. B24b *5/06*
U.S. Cl. 51—5 5 Claims



A grinding machine in which the abrasive wheel grinds not only a cylindrical surface, but also spaced radial surfaces of a workpiece, and in which a dressing apparatus is provided for dressing the end surfaces of the wheel.

3,739,529

MACHINE FOR THE SHARPENING OF IMPACT ROCK DRILLS WITH CHISEL CUTTING EDGES

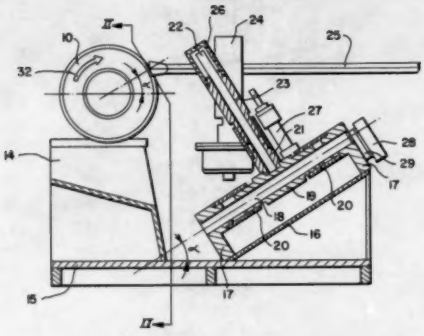
Burje Oskar Lundberg, Tyreso, Sweden, assignor to AB Grindex, Handen, Sweden

Filed June 25, 1971, Ser. No. 157,041

Claims priority, application Sweden, June 26, 1970, 8904/70

Int. Cl. B24b *3/33*

U.S. Cl. 51—92 R **4 Claims**



A machine for sharpening of impact rock drills having a number of radially directed chisel cutting edges around the axis of the drill crown comprising a grinding wheel with a double-conically shaped peripheral surface and a holding chuck for the drill during the sharpening operation, said grinding wheel being mounted on a horizontal shaft and the chuck being guided in a bi-directional grinding movement.

3,739,530

APPARATUS FOR MACHINING BODIES OF REVOLUTION HAVING A CIRCULAR GENERATRIX

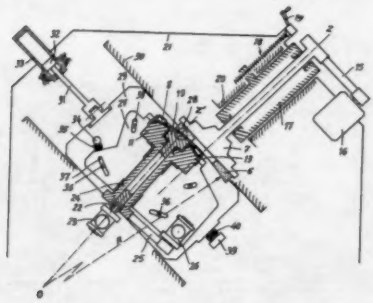
Jean Beauchet, Annecy, France, assignor to Societe Nouvelle De Roulements, Annecy (Haute Savoil), France

Division of Ser. No. 872,968, Oct. 31, 1969, Pat. No. 3,664,067. This application Nov. 18, 1971, Ser. No. 199,995

Claims priority, application France, Nov. 6, 1968, 68172174

Int. Cl. B24b *5/26, 5/32*

U.S. Cl. 51—105 R **5 Claims**



The apparatus of this invention comprises a cup-shaped rotary grinding wheel adapted to move in its axial direction and having a sphero-concave working surface, a circular rotary driving cage formed along its outer periphery with radial cavities adapted to receive the workpieces to be machined in a continuous cycle, these workpieces being so disposed as to have a common point of intersection with the axis of rotation of the driving cage, and a rotary track supporting and carrying along the workpieces with a movement of rotation about their axes, the cage revolving concentrically to the track and being adapted to bring the workpieces beneath the working zone of the grinding wheel.

3,739,531

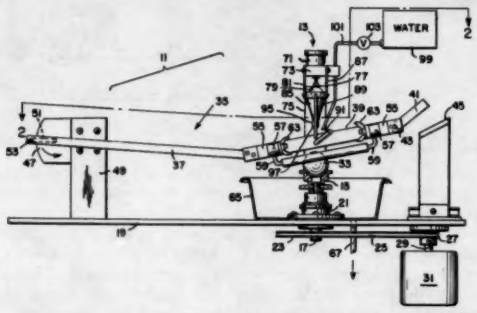
AUTOMATIC SPHERE GRINDER WITH AUTOMATIC FEEDER

Joseph C. Sharbaugh, 164 Warrior Road, Drexel Hill, Pa.

Filed May 17, 1971, Ser. No. 143,799

Int. Cl. B24b *11/10*

U.S. Cl. 51—105 R **7 Claims**



Lapidary apparatus for grinding rocks or stones into polished spheres, which are attractive works of art, comprising an automatic sphere grinder with automatic feeder, said apparatus including a grinding cup rotatable about a vertical axis and adapted to receive a work object to be ground into a sphere, a travelling boom, a pair of legs mounted on the boom and adapted to contact and rotate the work object, the legs contacting the work object on each side of the vertical axis of the cup to hold the work object in the cup, a motor crank arm connected to one end of the boom for reciprocably moving the boom and legs in a direction generally along the longitudinal axis of the boom so as to move the length of the legs over the work object to rotate it about a horizontal axis, a lift member mounted on the other end of the boom adapted to contact a stop member to momentarily lift the legs from the work object to allow the cup to spin the work object to another grinding position, a grit hopper having a feed port, a grit receiving member having an arcuate surface positioned below the feed port a distance such that when in normal position the arcuate surface receives a pile of grit having a positive angle of repose that shuts off the feed port, a shaft rotatably supporting the grit receiving member and having a handle extending downwardly therefrom of sufficient length to be heavy enough to support the arcuate surface in position beneath the feed port, a funnel mounted beneath the grit receiving member and over the work object, an actuating arm mounted on the boom and positioned so as to strike the handle to move the arcuate surface back and forth beneath the feed port to receive and dispense grit material into said funnel, and a water system with a water feed port positioned over the work object for feeding water thereto, the water feed port being positioned away from the funnel tube to prevent water from entering the funnel and clogging it with wet grit.

3,739,532

APPARATUS FOR TRANSFERRING AND OPERATING ON ARTICLES

John E. Scott, Columbus, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

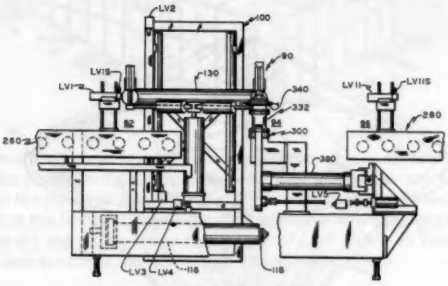
Filed June 30, 1971, Ser. No. 158,376

Int. Cl. B24b *21/00*

U.S. Cl. 51—135 R **15 Claims**

The features of the invention are illustrated in a preferred embodiment which provides novel apparatus for automati-

cally beveling the edges or rims of television picture tube funnel or viewing panel components. The components are delivered to an input station from which they are successively transferred to an edge beveling station. Each component is clamped at the beveling station with the rim at a predetermined height. The rim edges are contacted with edge beveling means also located to bevel at the same predetermined height. The edge beveling means and the rim are moved with respect to each other at the predetermined height until the beveling is completed to obtain a uniform bevel completely around the



rim. The completion of the beveling operation is sensed to release the clamping of the component at the beveling station and the beveled component is transferred to a discharge station. A component to be beveled is advantageously transferred from the input station to the beveling station while a beveled component is being transferred from the beveling station to the discharge station. Each component is aligned at the input station to insure proper orientation for transferring the component to the beveling station to enable clamping. The beveling of components is limited in accordance with the requirements of a successive operation station.

3,739,533

METHOD FOR OPTIMIZING TIRE UNIFORMITY

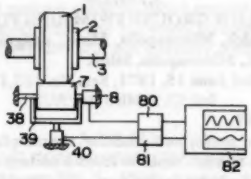
Yoshihiko Iida, and Yasushi Goto, both of Tokyo, Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

Filed Sept. 14, 1971, Ser. No. 180,283

Claims priority, application Japan, Sept. 25, 1970, 45/83458

Int. Cl. B24b *1/00*

U.S. Cl. 51—281 R **7 Claims**



A method for optimizing the uniformity of a pneumatic tire by selectively partially removing either or both edges of tire tread shoulder rubber. The amount of the tire tread rubber being removed and the specific edge at which the rubber is removed are determined based on the measured value of lateral force deviation and/or radial force variation of the tire.

3,739,534

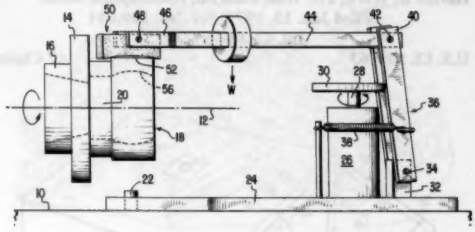
METHOD OF PRODUCING TORIC LENS ELEMENTS WITH ASPHERIC SURFACES

David L. Fuller, Atlanta, Ga., assignor to Scripto, Inc., Atlanta, Ga.

Filed Oct. 8, 1971, Ser. No. 187,605

Int. Cl. B24b *13/02*

U.S. Cl. 51—284 **5 Claims**



A toric lens element is provided with an aspheric surface by first generating a cylindrical surface of revolution on a body of optical material and then honing this surface to asperize it. While the work is being rotated about the axis of the cylinder, a honing member having a cutting surface of fixed radius is reciprocated back and forth along a path contained within a plane passing symmetrically through the work at an angle to the cylindrical axis. By controlling the curvature of the honing surface and the angle of honing, an aspheric surface is generated which approximates a fourth order sag plot effect. The particular relation is one in which the honing surface is formed with a radius of curvature which is equal to $1/R_l\cos^2\phi + 1/R_T\sin^2\phi$; where R_l is the instantaneous radius of curvature of the ellipse defined by the intersection of the cylindrical work surface and the plane in which the hone is reciprocated at that point of the ellipse at which the ellipse is intersected by its minor axis, R_T is the radius of the cylindrical surface, ϕ is equal to 90°minus the angle of the plane, $R_L=R_l\cos^2\phi+R_T\sin^2\phi$ with respect to the axis of rotation, and R_L is the radius of the honing surface.

3,739,535

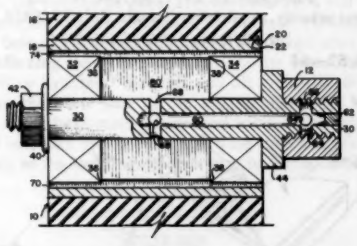
FLUID COOLED HUB ASSEMBLY FOR A CONTACT WHEEL

Joseph L. Fournier, Andover, Conn., assignor to Red-Lee Metal Finishing Company, Inc., Manchester, Conn.

Filed Mar. 3, 1971, Ser. No. 120,600

Int. Cl. B24b *21/14*

U.S. Cl. 51—356 **6 Claims**



A contact wheel hub assembly for a surface finishing machine is provided with cooling fluid conduits to remove heat generated by the contact wheel and a cooperating abrasive belt during grinding, sanding, buffing and similar finishing operations. The contact wheel of the assembly is composed of a rotatable support sleeve and a contact wheel tread over which the abrasive belt moves in driving contact. The support

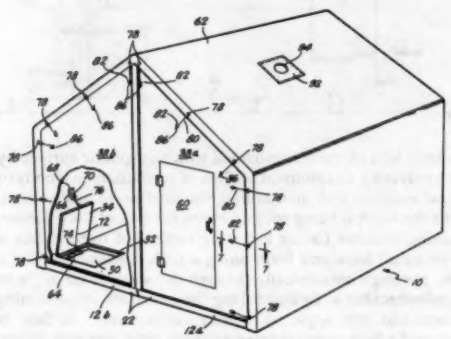
sleeve is provided with a plurality of axially extending internal grooves which serve as conduits for a cooling fluid supplied to the wheel during a finishing operation. The cooling fluid exhausts to the ambient environment through the grooves to remove heat generated by the finishing operation from the sleeve and contact wheel tread.

3,739,536

KNOCK-DOWN SHELTER

Harlan R. Ward, 215 West 52nd St., Minneapolis, Minn.

Filed Jan. 13, 1971, Ser. No. 106,011
Int. Cl. E04b *1/347*
U.S. Cl. 52—63 **17 Claims**



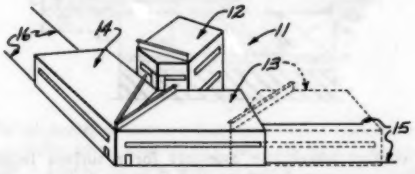
The opposite end walls of the erected shelter include at least one rigid panel, the lower edges of these panels being releasably received in a groove at the front and rear, respectively, of the shelter. A plurality of elongated rail members have L-shaped angle elements at each end which detachably engage over the upper edges of the panels and also the vertical braces secured thereto. A canvas sheet overlies the upper edges of the panels and the rail members to form the top and side walls of the structure. The edges of the canvas are anchored by means of flexible ropes. The flexible ropes that anchor the lower side edges of the canvas pass through openings in the floor which enable the shelter to be used as a fish house during winter months. A hinged lid is associated with each floor opening.

3,739,537

AIRCRAFT HANGAR

William A. Barnes, Hamilton, Ontario, Canada, assignor to H. H. Robertson Company, Pittsburgh, Pa.

Filed May 20, 1971, Ser. No. 145,202
Claims priority, application Canada, July 15, 1970, 88,334
Int. Cl. E04b *1/342*; **E04h** *6/44*
U.S. Cl. 52—64 **3 Claims**



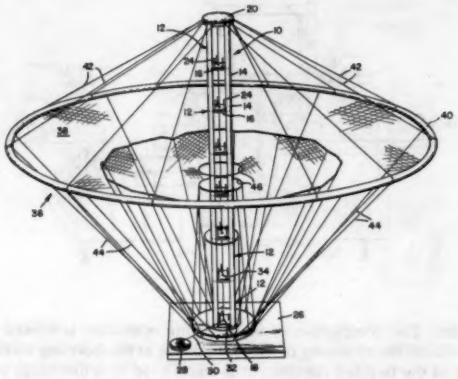
An aircraft hangar for housing modern extremely large aircraft, such as, the Boeing 747, the Boeing 747 extended and the Lockheed 1011. The hangar comprises a central, static building unit and two movable building units including guide means for establishing the locus of movement of the two building units along intersecting lines. The movable building units are separated. The central, static building unit receives the tail section and a portion of the fuselage of an aircraft. The movable units are brought together and enclose the wings and the remainder of the fuselage.

3,739,538

NON-ROTATABLY EXTENDIBLE MAST

Charles P. Rubin, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 29, 1970, Ser. No. 32,946
Int. Cl. E04h *12/10*; **H01q** *1/00*
U.S. Cl. 52—108 **2 Claims**



The mast is extendible along its axis from a collapsed position to a fully extended position and is useful as an antenna mast or boom, such as may be used to support an electromagnetic wave energy reflecting surface and/or to support transmitting and receiving equipment. The mast comprises three or more longitudinal members of spring material which have been preformed with a curvature in their transverse direction and are supported by a plurality of spaced platforms. The separation between platforms is determined by the buckling load required for the longitudinal members and the material is selected as to type and size to obtain the desired spring bias. Packaging is achieved by buckling each of the longitudinal members inwardly to permit the platforms to be brought together. Mechanical stops between the platforms prevent the introduction of excessive curvature into the buckled longitudinal members. Deployment occurs by releasing the collapsed mast. The stored internal energy in the bent longitudinal members is sufficient to completely erect the mast to its fully extended position.

3,739,539

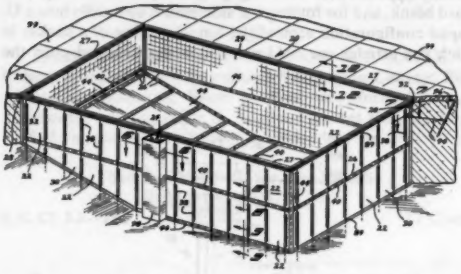
BELOW GROUND SWIMMING POOL

Irving H. Posnick, Minneapolis, Minn., assignor to Aqualand Pool Co., Inc., Minneapolis, Minn.

Filed June 15, 1971, Ser. No. 153,177
Int. Cl. E04h *3/16, 3/18*
U.S. Cl. 52—169 **6 Claims**

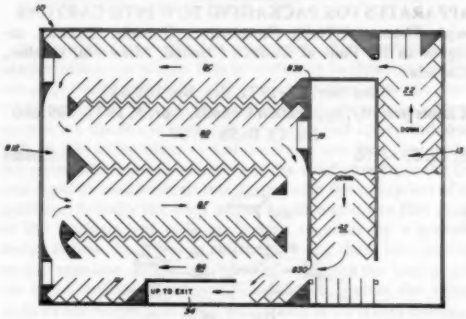
A plurality of preformed modular, thermoplastic panels are solvent welded to each other to form a unitary swimming pool structure in place in an excavation only slightly larger than the final pool dimensions. Vertical stiffener ribs previously solvent welded to the outside of the walls of the pool are utilized to stiffen the walls and to anchor them by passing reinforcing bars therethrough. The bars are anchored into the ground. To join abutting vertical edges of adjacent panels, an elongated clamp is used to hold the panels and an overlying weld plate during the hardening of the solvent weld. This clamp is in two severable parts including an outside plank member having upper and lower legs which are temporarily clamped to

cooperating legs of an inside plank member respectively above and below the panels. After the weld is complete and the clamp removed, adjacent ribs and reinforcing bars on either side of the vertical weldment are at least temporarily encompassed by a vertical concrete form and concrete is



poured therein to additionally strengthen the bond between the panels. A finish coping is positioned around the top edge of the pool and has a flexible downwardly extending plane so that the bottom flange edge rests in generally sealing relation to the top edge portion of the vertical pool wall even though there are minor undulations in this top edge portion.

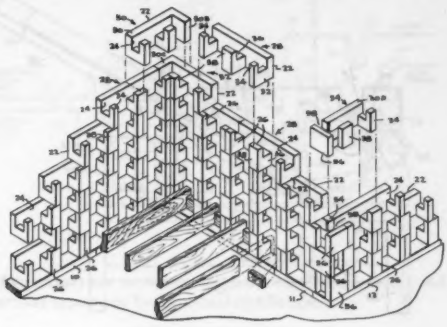
3,739,540
GARAGE CONSTRUCTION
Charles W. Ennis, Jr., P.O. Box 16083, San Antonio, Tex.
Filed Sept. 3, 1971, Ser. No. 177,792
Int. Cl. E04h *6/10*
U.S. Cl. 52—175 **9 Claims**



A multi-storied building for tne compact and efficient storage of automobiles having a plurality of ingress and egress areas of street level and said ingress areas having direct access to below ground parking areas, to above ground parking areas and to a street level area. The incoming circulation flow pattern is such that vehicles will not interfere with the outgoing flow of vehicles.

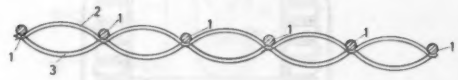
3,739,541
BUILDING COMPONENT CONSTRUCTION
Lamont F. Andrews, 821 S. 129th Avenue, Omaha, Nebr.
Filed Feb. 25, 1971, Ser. No. 118,675
Int. Cl. E04c *1/39*
U.S. Cl. 52—220 **7 Claims**

A unitary wall or floorlike building component is provided in the form of a main wall element connected to a plurality of parallel stud members by parallel connector portions perpendicular to the wall element and the stud members between which horizontally extending access openings for heating, plumbing or electrical components are provided. The building component can be either of unitary poured construction or can be formed of plural component block units held together by mortar or adhesive with another feature residing in having block units formed of plastic box frames with internal plate bracing fixed on the interior of the box frames for lightness



and strength; another aspect of the invention resides in a thin brick plate facade attached to the outer surface of the wall element with the brick plates being embedded in a mortar surface and being of substantially thin construction while having the appearance of full size bricks.

3,739,542
SHUTTERING AND REINFORCING ELEMENT FOR CONCRETE STRUCTURES
Horst Glatz, Eldagsen Hanover, Germany, assignor to Deumu Deutsche Erz-und Metall-Union Gesellschaft mit beschrankter Haftung, Hanover, Germany
Filed Mar. 16, 1971, Ser. No. 124,826
Claims priority, application Germany, Apr. 4, 1970, P 20 16 225.8; May 13, 1970, P 20 23 243.3
Int. Cl. E04c *2/42, 5/04*
U.S. Cl. 52—669 **11 Claims**

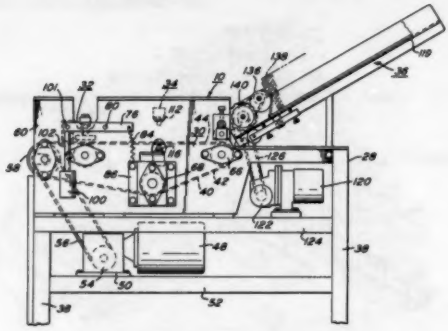


The invention relates to structural elements used as shuttering and as reinforcing elements in the production of concrete structures. The structural elements are basically plate-like in form and built up from an assembly of longitudinal rods in one plane, the rods being connected by a series of cross-ribs of strip form, the portion of each strip between each rod being curved out of the plane of the plate, the curvature of alternate cross-ribs being in opposed directions. The longitudinal rods are of reinforcing steel while the strips for the cross-ribs may be of steel or synthetic material and all cross-ribs may be fastened to the same side of the longitudinal rods. Where cross-ribs of synthetic material are used additional strengthening ribs of strip-like or rod-like reinforcing steel also arranged transversely to the longitudinal rods may be connected to the latter.

3,739,543
ENVELOPE OPENING APPARATUS AND METHOD
Roland G. Harris, Haddonfield, N.J., assignor to Automated Mail Systems, Inc., Cherry Hill, N.J.
Filed June 21, 1971, Ser. No. 154,827
Int. Cl. B65b *43/26*
U.S. Cl. 53—3 **34 Claims**

Envelopes are opened through frictional engagement and a resultant tension action along preweakened edges. An en-

velope is driven onto a moving belt and the envelope is detected in its path by a photocell. A time delay circuit allows the envelope to be moved to a predetermined station where shoes contact the envelope. The shoes move through an envelope plane intersecting path to frictionally engage the envelope only once. The shoe normal force in combination with the moving belt force cause the envelope to burst open at the preweakened edges after which it passes under a pair of rollers.

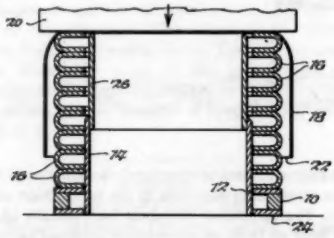


3,739,544

METHOD AND APPARATUS FOR THE SHRINK-WRAPPING OF PACKAGES

Walter Hanemann, Frankfurt/Main, Germany, assignor to Feldmuhle Aktiengesellschaft, Dusseldorg-Oberkassel, Germany

Filed Feb. 12, 1971, Ser. No. 114,824
Int. Cl. B65b *1/24, 13/20, 53/02*
U.S. Cl. 53—24 **2 Claims**



A method for packaging frame, coil or ring shaped articles stacked on a pallet with a shrink film wrapping. The articles are stacked on the pallet over a guide element which projects upwardly through a recess in the pallet. In some embodiments the articles are compressed after being covered with a shrink film wrapping. The wrapping is heat-shrunk about the stack of articles and portions of the pallet. In some embodiments the guide element is telescoping and is removed through the pallet recess after the wrapping is heat-shrunk.

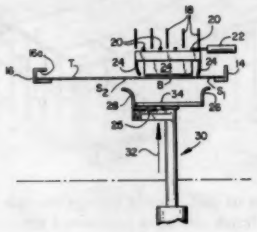
3,739,545

METHOD AND APPARATUS FOR PACKAGING ARTICLES

Horst G. Lattke, Middletown, Conn., assignor to Emhart Corporation, Bloomfield, Conn.

Filed May 19, 1971, Ser. No. 144,804
Int. Cl. B65b *5/02, 11/26*
U.S. Cl. 53—29 **10 Claims**

An automatic machine is disclosed for packaging an array, or slug, of articles, such as cans, in a paperboard carton, wherein the carton is first provided in a flat blank form, is then preliminarily formed into a U-shaped configuration, and then final wrapped around the array of articles, to be subsequently glued up and sealed so as to form a very compact paperboard carton for the articles. The machine includes a frame having a vertically movable elevator structure which is equipped with laterally opposed plows for engaging side panels of the paperboard blank, and for folding the side panels upwardly into a U-shaped configuration around the funnel portion of a packer in which the articles are held prior to being dropped onto the bottom panel of the blank. After the articles are positioned thereon, the elevator structure lowers the U-shaped blank, together with the articles, onto a pocket chain conveyor where the carton is fed laterally off the elevator to fold the top panel, and to fold the end panels associated with the side panels, as well as those associated with the top and bottom panels, into place. A conventional vertical compression unit is also used, and the manufacturer's tab or flap is glued and folded in this portion of the machine.

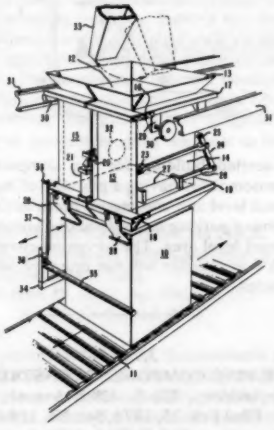


3,739,546

APPARATUS FOR PACKAGING TOW INTO CARTONS

Joseph Thomas O'Neill, Gananoque, Ontario, Canada, assignor to Du Pont of Canada Limited, Montreal, Quebec, Canada

Filed Nov. 23, 1971, Ser. No. 201,425
Claims priority, application Canada, Apr. 5, 1971, 109,660
Int. Cl. B65b *63/04*
U.S. Cl. 53—116 **6 Claims**



In an apparatus for packaging tow into cartons in which tow is fed from a spout reciprocating in a first plane into a carton reciprocating in a second plane at right angles to the first plane, there is provided a filler sleeve to facilitate the filling of the cartons. The filler sleeve fits over the top of the carton and has four sides which are adapted to form a vertical extension of the four sides of the carton. The filler sleeve has a flexible

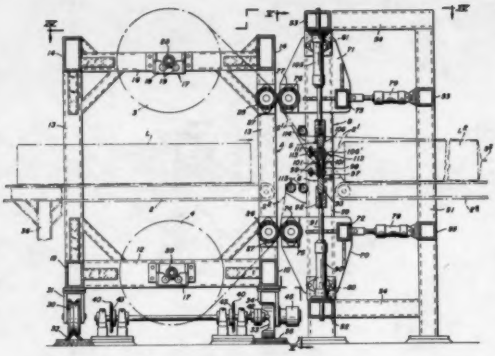
locating means adapted to hold the filler sleeve to the carton while the carton reciprocates. The filler sleeve has its own support means so that it may be moved either dependently or independently of the carton. At least one side of the filler sleeve may be opened by a means designed to keep the side in the opened or closed position.

3,739,547

SHRINK-WRAPPING METHOD AND APPARATUS

Robert Brevko, Peters Township, Washington County; Peter Viviano, Pittsburgh; Regis M. Rudman, North Braddock Borough, and Lawrence D. Adams, Pleasant Hills Borough, all of Pa., assignors to Auburn Engineering, Inc., Pittsburgh, Pa.

Filed Jan. 28, 1971, Ser. No. 110,684
Int. Cl. B65b *9/02, 41/12*
U.S. Cl. 53—182 **17 Claims**



In a shrink film method and apparatus for enveloping successive articles in plastic film preparatory to shrinking it there are upper and lower rolls of film at one end of a shuttle frame on the pass-line through the machine and when these rolls are exhausted, the frame is moved crosswise and upper and lower rolls of film at the other end of the frame are then centered on the pass-line while replacement of the used ones from the first end is performed without interfering with the operation of the machine. Initially the ends of the upper and lower film sheets of the replacement rolls are joined together by a portable sealer before the frame is shifted to bring them into position on the pass-line. In the operation of wrapping the load or article to be wrapped is moved horizontally against the jointed ends of the upper and lower films and as its travel continues the lower sheet is pulled along under the load and the upper sheet is pulled over the top thereof. At the trailing end of the load seal-cut-seal bars seal the upper and lower film sheets at the trailing end sever both films and fuse the sheets together behind the line of cut, leaving them joined together across the path of the leading end of the load to be wrapped. After the front ends of the load, and preferably the entire load, has cleared the plane of the seal-cut-seal bars, the side margins of the top and bottom film sheets are folded into overlapping relation and are fused together, normally without any stopping of the machine.

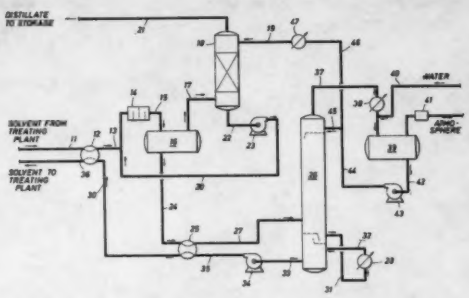
3,739,548

METHOD AND APPARATUS FOR REMOVING DISTILLATE FROM PHYSICAL SOLVENTS

Arnold M. Hegwer, Houston, Tex., assignor to Fish Engineering & Construction, Inc., Houston, Tex.

Filed Jan. 28, 1972, Ser. No. 221,684
Int. Cl. B01d *19/00*
U.S. Cl. 55—45 **4 Claims**

Water is mixed with a stream of physical solvent used for acid gas removal which contains distillate. The mixture separates into an aqueous phase containing the physical solvent and water and an organic phase containing the distillate.



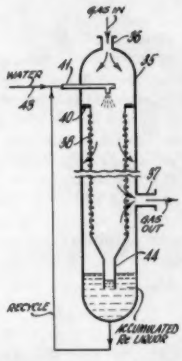
The two phases are separated mechanically and the water and solvent are separated by fractional distillation.

3,739,549

RHENIUM EXTRACTION PROCESS

Rafael J. Hevia, Camino El Alba 8568, and Luis Soto-Krebs, Fernando de Aragon 4240, both of Santiago, Chile

Filed Oct. 28, 1971, Ser. No. 193,459
Int. Cl. B01d *53/14*
U.S. Cl. 55—72 **26 Claims**



The recovery of rhenium from roaster gases is improved in extraction efficiency in that, following the removal of solids from the gas, the dust-cleaned gaseous effluent remaining which contains particles of rhenium oxide ranging down to submicron size is then subjected to wet-filtering, whereby to effect a substantial improvement in the recovery of rhenium in the gas.

3,739,550

ADSORBENT FOR DESULFURIZATION OF SULFUR DIOXIDE CONTAINING WASTE GASES

Kruel Martin, Essen-Bergerhausen; Dieter Zurawsky, Gladbeck, and Harald Juntgen, Essen-Heisingen, all of Germany, assignors to Bergwerksverband GmbH, Essen, Germany

Filed Oct. 7, 1968, Ser. No. 765,690
Claims priority, application Germany, Oct. 6, 1967, P 16 19 840.6
Int. Cl. B01d *53/04;* **C01h** *17/51*
U.S. Cl. 55—73 **9 Claims**

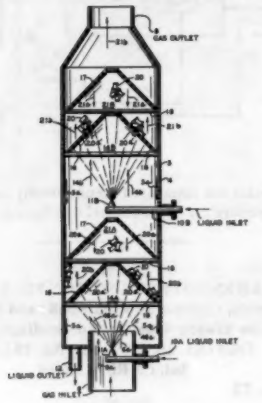
A carbon containing adsorbent for the desulfurization of carbon dioxide containing waste gases is impregnated with a mixed catalyst, the catalyst comprising (a) a vanadium compound and (b) at least one compound of the elements potassium, lithium or barium. The catalyst has considerably improved regeneration values.

3,739,551

METHOD OF GAS ABSORPTION AND APPARATUS THEREFOR

John S. Eckert, Silver Lake, Ohio, assignor to Norton Company, Akron, Ohio

Filed Nov. 16, 1970, Ser. No. 90,087
Int. Cl. B01d 47/06
U.S. Cl. 55—90 18 Claims



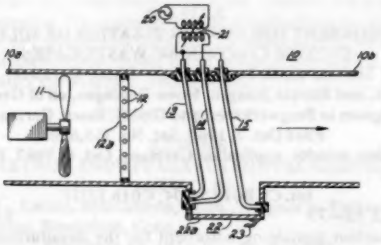
A liquid-gas contacting apparatus has a liquid spray-nozzle which sprays liquid cocurrently with the gas to be contacted, a packed bed adapted to detrain the liquid and trickle it in counter-current flow against the gas, and an unpacked section of the apparatus providing a falling film of liquid along the walls to counter-currently contact the gas. The method comprises carrying out in a single item of equipment, by the sequence of cocurrent spray contacting, followed by counter-current contacting in a packed bed, and counter-current falling film contacting by means of a wetted wall technique. Vertical and horizontal scrubbers are provided which are adapted to remove noxious fumes from air.

3,739,552

AIR FILTER UTILIZING SPACE TRAPPING OF CHARGED PARTICLES

Harold F. Webster, Scotia, and N. Rey Whetten, Burnt Hills, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 1, 1971, Ser. No. 203,798
Int. Cl. B03c 3/04
U.S. Cl. 55—123 26 Claims



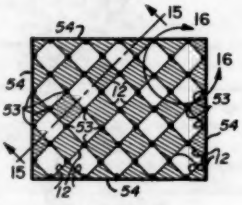
A duct for the transmission of an air flow therethrough is provided with parallel planar arrays of electrical conductors which are angularly positioned relative to the axis of the air flow. The conductors are parallel to each other and connected to a source of alternating current voltage for generating two dimensional multipolar alternating current electrodynamic fields across the duct. The electrical forces generated by the multipolar fields trap charged particles in the air flow and the orientation of the air flow relative to the angular position of the conductor planar arrays causes the particles to be directed to a side of the duct for collection and subsequent removal. The trapping of the particles is enhanced by coating the conductors with a high dielectric strength material.

3,739,553

EXHAUST EMISSION CONTROL MEANS FOR INTERNAL COMBUSTION APPARATUS

Harry E. Aine, 4008 Twyla Lane, Campbell, Calif.

Filed June 14, 1971, Ser. No. 152,676
Int. Cl. B01d 13/00
U.S. Cl. 55—158 2 Claims



An exhaust emission control means for removing smog producing constituents from the exhaust gases of an internal combustion chamber is disclosed which employs a membrane gas separator disposed in gas communication with the flow of exhaust gases at essentially atmospheric pressure. The gas separator causes unburned hydrocarbons and other smog producing constituents of the exhaust gas to go into solution with the membrane material, which is a barrier to permanent gases, and to diffuse from the membrane material into a stream of fresh air at substantially atmospheric pressure which is thence fed back to the combustion chamber or to an afterburner for completing the combustion of such smog producing constituents. A relatively large area of membrane material is provided in a relatively small volume by pleating or folding the membrane. Alternatively, a large area membrane is provided in a small volume by bonding together adjacent sheet portions of membrane in a certain pattern of bond lines to provide a honeycomb of alternating exhaust and fresh air gas passageways when the bonded structure is expanded.

3,739,554

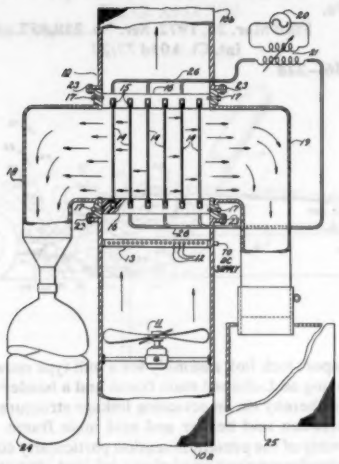
AIR FILTER UTILIZING ALTERNATING CURRENT ELECTRIC FIELDS

N. Rey Whetten, Burnt Hills, and Harold F. Webster, Scotia, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 1, 1971, Ser. No. 203,809
Int. Cl. B03c 3/08
U.S. Cl. 55—123 25 Claims

A duct for the transmission of an air flow therethrough is provided with a plurality of parallel plates oriented parallel to the air flow. The plates have aligned holes therethrough and are connected to a source of alternating current voltage for generating alternating current electric fields in the region of the holes. The electrical forces generated by the electric fields

trap charged particles in the air flow and direct them through the holes to the sides of the duct for collection and subsequent



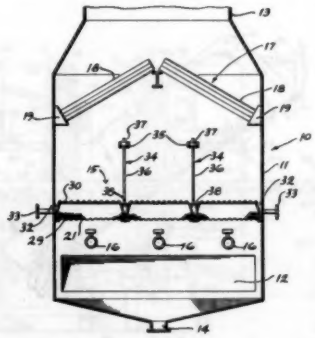
removal. The trapping of the particles is enhanced by coating the plates with a high dielectric strength material.

3,739,555

MODULAR AIR POLLUTION CONTROL SCRUBBER BED

Preston Dean Liebig, West Hartford, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 30, 1971, Ser. No. 213,857
Int. Cl. B01d 47/14
U.S. Cl. 55—233 10 Claims



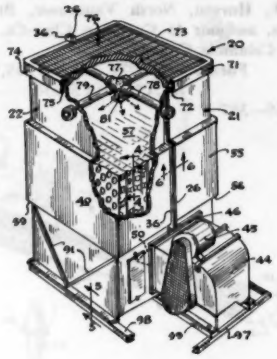
A gas cleaner incorporating a wet scrubber wherein the scrubber bed is made from self-contained basket-like modules which when in assembled relationship, are capable of carrying off water overflowing from the modules and thereby maintaining the desired turbulent level within the scrubber bed. The facing sides of adjacent modules are inclined inward so as to form a trough which catches the overflowing water, and which communicates with means for disposing of the overflowing water. A cover grill is provided for each bed module for the purpose of containing the filter material.

3,739,556

WATER COOLING TOWERS

Charles E. Waters, Barrington, Ill., assignor to Application Engineering Corporation, Elk Grove Village, Ill.

Filed Dec. 30, 1970, Ser. No. 102,776
Int. Cl. B01f 3/04
U.S. Cl. 55—257 9 Claims



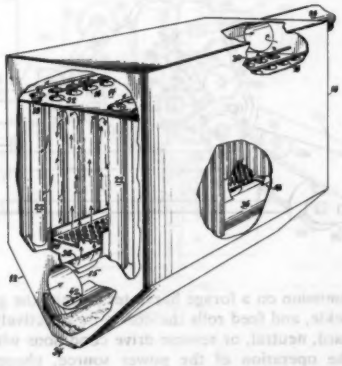
An evaporative water cooling tower of the counterflow type, of all-plastic construction, in which the tower housing is formed of two symmetrical mating shells each vacuum-formed from a single sheet of high-impact ABS or other resin material, bonded together at flanged mating edges, having internal shelves formed integrally with the housing shells for supporting plastic evaporator and moisture eliminator grids in the housing, and including a water inlet comprising two intersecting PVC pipes, connected to a spray nozzle at the intersection, between the evaporator and eliminator grids.

3,739,557

BAG FILTER ARRANGEMENT

William M. Anderson, and Ronald J. Renko, both of Wellsville, N.Y., assignors to The Air Preheater Company, Inc., Wellsville, N.Y.

Filed Dec. 20, 1971, Ser. No. 209,806
Int. Cl. B01d 46/04
U.S. Cl. 55—302 5 Claims



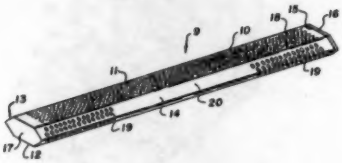
A bag filter apparatus that removes entrained particulate matter from a carrier gas stream is disclosed. The bag filter has a novel flow arrangement that provides for a sudden expansion of the carrier gas to thereby lower its velocity and thus reduce its capacity to carry particulate matter while it precludes direct impingement of entrained particulate matter upon the fabric filter bags to reduce abrasion of the fabric.

The flow arrangement defined also increases the collecting efficiency of the filter bag by eliminating the re-entrainment of filtered dust in the gas stream after it has been once removed therefrom.

3,739,558
ODOR ADSORBER

Frank W. Hurson, North Vancouver, British Columbia, Canada, assignor to Canadian Char-Co. Ltd., Burnaby, British Columbia, Canada

Filed Dec. 6, 1971, Ser. No. 205,153
Int. Cl. B01d *53/04*
U.S. Cl. 55—387 **1 Claim**

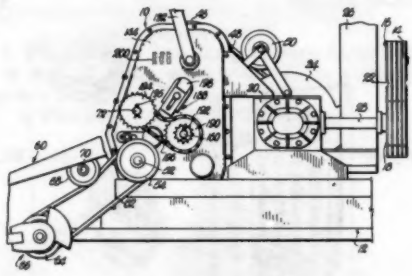


An odor adsorbing device in the form of a perforated elongated container filled with activated carbon particles. A cap is removably mounted on the container, allowing the device to be refilled.

3,739,559
TRANSMISSION FOR FORAGE HARVESTERS AND THE LIKE

William D. Long; Ferol S. Fell; Bernard L. Wells, and John P. Prichard, all of Hesston, Kans., assignors to Hesston Corporation, Hesston, and Field Queen Incorporated, Maize, Kans. part interest to each

Division of Ser. No. 107,090, Jan. 18, 1971, Pat. No. 3,670,590. This application Feb. 4, 1972, Ser. No. 223,441
Int. Cl. A01d *55/26*
U.S. Cl. 56—13.9 **3 Claims**

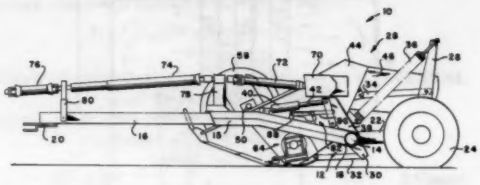


A transmission on a forage harvester permits the gathering chains, sickle, and feed rolls thereof to be selectively shifted into forward, neutral, or reverse drive conditions without affecting the operation of the power source, chopper, and blower of the harvester. Components of the transmission are operably coupled in such a manner that the rotative speeds of the feed rolls may be varied relative to the chopper without correspondingly varying the speeds of operation of the sickle and gathering chains, and rockable shifter mechanism journaling the input shaft of the transmission is geometrically arranged such that the transmission tends to remain in its forward drive condition.

3,739,560
TRANSPORT LOCK LINK FOR A MOWER CONDITIONER

Wilbur L. Slaymaker, Kinzers, and John H. Long, Narvon, both of Pa., assignors to Sperry Rand Corporation, New Holland, Pa.

Filed Mar. 28, 1972, Ser. No. 238,857
Int. Cl. A01d *75/22*
U.S. Cl. 56—228 **5 Claims**

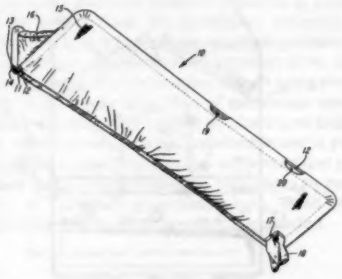


A transport lock link assembly for a pull type mower conditioner having an L-shaped main frame and a header moveably supported thereby via an actuating linkage structure interconnected between said header and said main frame. The lock link assembly of the present invention particularly comprises a lock link having one end operatively connected to said actuating linkage structure and the other end confined and moveable within a generally L-shaped slot structure having removeable stop means associated therewith for selectively maintaining the end of the lock link confined within said slot in either an operating mode or a transport lock mode.

3,739,561
PORTABLE, LIGHT-WEIGHT FRUIT GATHERING DEVICE

Robert J. Boudeman, Hickory Corners, Mich., assignor to Wells Manufacturing Corporation, Three Rivers, Mich.

Filed Apr. 17, 1972, Ser. No. 244,736
Int. Cl. A01g *19/06*
U.S. Cl. 56—329 **4 Claims**



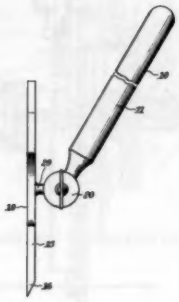
A portable, light-weight fruit gathering device, suitable for use in conjunction with mechanical fruit harvesting means, comprises a rigid articulated frame made up of an elongated central member and a pair of opposed, U-shaped frame members with depending legs pivotally mounted at the terminal portions thereof on said central member, a flexible sheet material coextensively mounted on said frame and provided with a fruit discharge opening, flexible web means attached at both ends of said frame and limiting the pivot of the frame members to less than 180° relative to each other, and a fruit discharge chute attached to the flexible sheet material around the periphery of the discharge opening.

3,739,562

GARDEN TOOL

Gerald J. McNamara, Birchrun, Mich., assignor to the Raymond Lee Organization, Inc., New York, N.Y.

Filed Feb. 29, 1972, Ser. No. 230,339
Int. Cl. A01d 7/10
U.S. Cl. 56—400.06 2 Claims



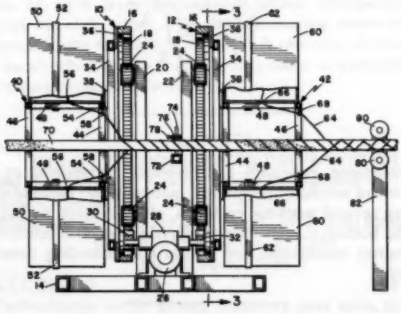
An improved tool for use in landscaping work consisting of a handle attached to a tool by means of an angularly adjustable joint, said tool consisting of a set of rake teeth on one edge of the tool surface, and a hoe blade on the opposed edge of the tool surface. The adjustable joint permits the locking of the tool surface at any desired angle to the handle to permit use of either the rake or the hoe edges and at the angle required for the particular task. With the tool surface locked at right angles to the handle, the device may be employed as a tamping tool.

3,739,563

CORE WRAPPING MACHINE

Herbert J. Shear, Jr., 626 Live Oak Drive, El Cajon, Calif.

Filed Feb. 10, 1972, Ser. No. 225,173
Int. Cl. D02g 3/00
U.S. Cl. 57—15 10 Claims



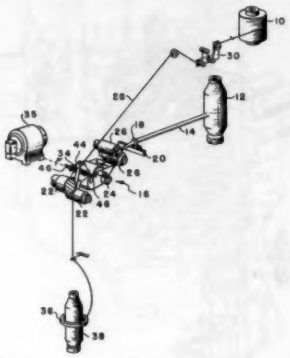
A machine for wrapping fibrous reinforcing material around a core member of a somewhat fragile nature, such as foam plastic. Miltiple strands of reinforcing material are wrapped helically in opposite directions as the core member passes through the machine, the reinforcing being fed from stock cartons secured on simple supporting frames which are rotated about the core member. The frame units are circumferentially supported and have open center portions for passage of a variety of core members through adjustable guide means.

3,739,564

YARN GUIDE

Herbert P. King, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

Filed Apr. 24, 1972, Ser. No. 247,089
Int. Cl. B65h 57/16; D01h 5/78; B65h 27/00
U.S. Cl. 57—36 4 Claims



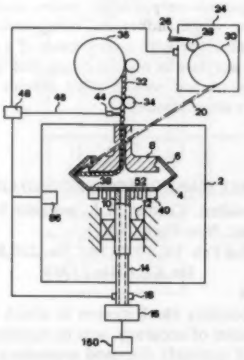
A yarn guide for a spinning system which employs a spreader roll to separate the filaments of a continuous multifilament yarn to allow staple yarn to be placed among the separated elements.

3,739,565

METHOD AND APPARATUS FOR CLEANING THE SPINNING ROTORS OF OPEN-END SPINNING EQUIPMENT

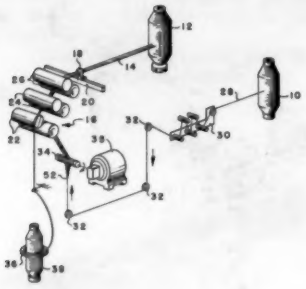
Ernst Nagel, Weisslingen, Switzerland, assignor to Luwa AG, Zurich, Switzerland

Filed Jan. 24, 1972, Ser. No. 220,325
Claims priority, application Switzerland, Jan. 29, 1971, 1376/71
Int. Cl. D01h 1/00
U.S. Cl. 57—58.89 13 Claims



A method of, and apparatus for, cleaning the spinning rotors of open-end spinning equipment, wherein the air flow through the spinning rotor upon the occurrence of a yarn rupture condition is reversed. Fibers are detached from the wall of the spinning rotor by virtue of the reverse flow of such air current, the fibers placed in a state of suspension and then removed, preferably by suction, from the spinning rotor.

3,739,566
APPARATUS TO PRODUCE YARN
Philip N. Smith, 216 Emory Road, Spartanburg, S.C.
Filed July 1, 1971, Ser. No. 158,896
Int. Cl. D02j 1/18; B65h 27/00; D01h 5/78
U.S. Cl. 57—90 4 Claims



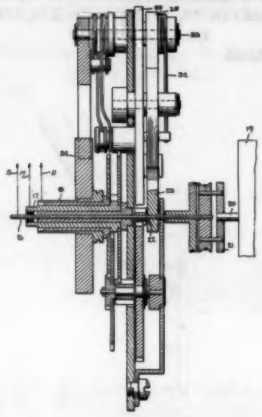
A double threaded spreader roll to separate the filaments of a continuous multifilament yarn to allow staple yarn to be placed among the separated filaments and the yarns to be twisted together to form a yarn having the strength of filament yarn and the appearance of spun staple yarn.

3,739,567
COATED YARNS
David Vincent Stewart Williamson, Geneva, Switzerland, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Jan. 19, 1971, Ser. No. 107,839
Claims priority, application Great Britain, Jan. 20, 1970, 2,795/70
Int. Cl. D02g 3/36
U.S. Cl. 57—153 26 Claims

Coated yarns suitable for use in woven piled fabrics comprising a synthetic organic polymeric base yarn, such as polyolefin, polyamide or polyester yarns, coated with a hot-melt synthetic resin adhesive composition comprising copolymers of ethylene with a vinyl ester of a carboxylic acid or with an alkyl acrylate or methacrylate, and wax. Process for the preparation of and woven piled fabrics made of such coated yarns are also provided.

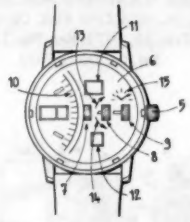
3,739,568
SETTING MECHANISM FOR SECONDARY CLOCKS
Egbert Van Haaften, Closter, N.J., assignor to Bulova Watch Company, Inc., New York, N.Y.
Filed Feb. 14, 1972, Ser. No. 225,834
Int. Cl. G04c 13/02
U.S. Cl. 58—24 8 Claims

A master-secondary clock system in which a master clock having a high order of accuracy, acts to regulate the operation of a plurality of remotely disposed secondary clocks. This is accomplished by means of a direct-current control pulse which is transmitted to the secondary clocks from the master clock, and is received at each secondary clock by an electromagnetic setting mechanism adapted to reset the seconds hand of the secondary clock to bring it into registration with the seconds hand of the master clock. The setting mechanism is also adapted to shift the hour hand of the secondary clock one hour ahead or back, depending on whether a transfer is to be made from Standard to Daylight Savings time or vice versa, this action being effected concurrently with the resetting of the seconds hand, but only when the control pulse is transmitted during a predetermined interval in the course of the



day, the direction of shift depending on the polarity of the control pulse.

3,739,569
TIMEPIECE
Daniel Rochat, Neuchatel, Switzerland, assignor to Ebauches S.A., Neuchatel (Canton of Neuchatel), Switzerland
Filed Feb. 1, 1972, Ser. No. 222,581
Claims priority, application Switzerland, Feb. 17, 1971, 2302/71
Int. Cl. G04b 19/24, 27/02
U.S. Cl. 58—58 3 Claims

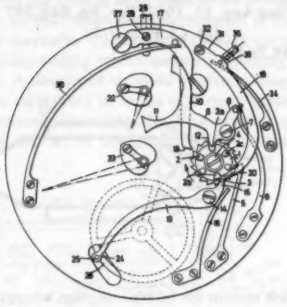


A timepiece, especially a wrist-watch, comprising at least one control mechanism operable manually and capable of occupying several working positions, characterized by the fact that the bottom carries indications of the several positions of the control mechanism and of the corresponding functions thereof.

3,739,570
COLUMN-WHEEL TIMER
Peter Bachmann, Bettlach, (Canton of Soleure), Switzerland, assignor to Ebauches Bettlach s.A., Bettlach, Switzerland
Filed Feb. 24, 1972, Ser. No. 228,842
Claims priority, application Switzerland, Mar. 10, 1971, 3501/71
Int. Cl. G04f 7/04
U.S. Cl. 58—76 12 Claims

A column-wheel timer or timepiece having at least one hand rotatably mounted on a housing base, and including a return-to-zero hammer, a stopping lever, a push-piece, a control lever

and re-engaging lever, which cooperate with a column-wheel for stopping the timepiece movement, returning the hand to a



zero indicating position, and re-engaging the timepiece movement with the hand.

3,739,571

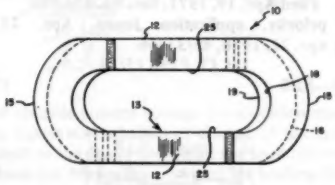
LAMINATED CHAIN LINK CONSTRUCTION

Walter B. Lashar, Jr., York, Pa., assignor to American Chain & Cable Company, Inc., New York, N.Y.

Filed May 4, 1971, Ser. No. 140,224

Int. Cl. F16g *15/12*

U.S. Cl. 59—84 **10 Claims**



A chain link having multiple layers joined together to form a composite laminated link. Each layer of the link has two J-shaped link plates joined together at their ends to form the various layers of the link with the joints between the link plates of each layer arranged in offset relationship with respect to each other, thereby minimizing cross-sectional variation in the strength of the link. A plurality of these links can be attached end to end to form a chain or combined with alternate links made of solid layers.

3,739,572

ENGINE TURBOCHARGER DRIVE SYSTEM

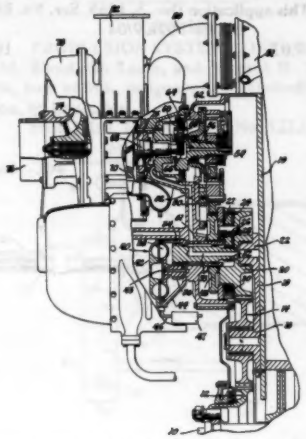
Bruno A. Duerr, La Grange Park, Ill., assignor to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 159,210, July 2, 1971. This application July 19, 1972, Ser. No. 273,097

Int. Cl. F02b *37/04*

U.S. Cl. 60—13 **5 Claims**

Turbocharger drive having planetary gear units in a gear train between an engine crankshaft and a compressor rotor, which rotates to supply air to an engine for combustion. The reaction member of a planetary unit of the gear train is connected to the pump of a hydrodynamic unit while the turbine member is grounded so that the stall torque of the unit retards rotation of the reaction member to permit the engine crankshaft to drive the rotor through the gear train. The hydrodynamic unit having an infinite number of spring rates provides an infinitely flexible device for reducing transmission of engine torsionals and shock loads through the gear train. The mechanical drive is assisted by a gas drive from the engine exhaust which progressively increases as the engine approaches full load and the rotor becomes fully driven by the engine exhaust gases. When the gas drive speed and load



equals the rotor needs, the mechanical system reaches a no-load condition.

3,739,573

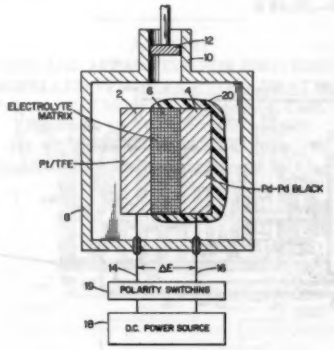
DEVICE FOR CONVERTING ELECTRICAL ENERGY TO MECHANICAL ENERGY

Jose Giner, Sudbury, Mass., assignor to Tyco Laboratories, Inc., Waltham, Mass.

Filed Oct. 20, 1970, Ser. No. 82,440

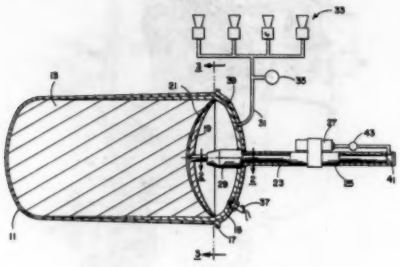
Int. Cl. F01k *25/08*

U.S. Cl. 60—37 **23 Claims**



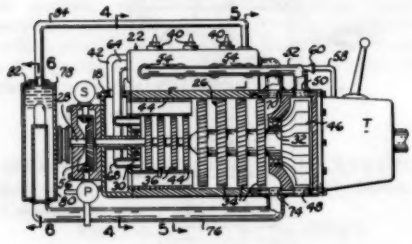
An electrochemical energy conversion device comprising a container, one or more electrochemical cells in said container adapted to produce a gas or to consume said gas according to the polarity of current passed by said one or more cells, polarity reversible means for passing current through said one or more cells, and pressure-responsive moveable mechanical means arranged for movement according to changes in the gas pressure in said container. Each cell comprises a gas producing and consuming electrode, a counter electrode, and an electrolyte contacted by both electrodes.

3,739,574
GAS GENERATOR METHOD AND APPARATUS
John N. Godfrey, Asheville, N.C., assignor to Northrop Carolina, Inc., Swannanoa, N.C.
Continuation-in-part of Ser. No. 797,038, Feb. 6, 1969, abandoned. This application Dec. 3, 1969, Ser. No. 881,667
Int. Cl. F02k 9/04
U.S. Cl. 60—39.03 10 Claims



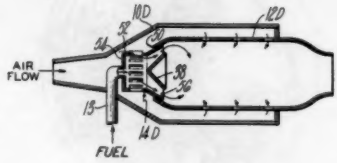
A gas generator method and apparatus comprising an enclosed pressure chamber having an exit port, a solid combustible material disposed in the chamber, a catalyst which can increase the decomposition rate of the combustible material which has been previously ignited, the catalyst being supported in the chamber adjacent to a surface of the combustible material. Means is provided for sensing the pressure in the chamber when the combustible material is decomposing and means is provided for moving the catalyst relative to the combustible material to maintain approximately constant chamber pressure during decomposition.

3,739,575
COMBUSTION GAS RECIRCULATING TURBINE ENGINE
David E. Falk, 3974 Norton Avenue, Oakland, Calif.
Filed Apr. 5, 1972, Ser. No. 241,168
Int. Cl. F02c 1/04
U.S. Cl. 60—39.18 B 5 Claims



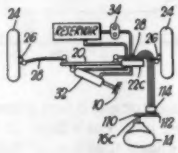
An axial flow turbine is journalled within a housing having a manifold divided to form combustion and steam generating chambers mounted thereon. The exhaust ports of chambers are connected by tubing and communicate with the forward end of the housing. A turbine driven fan supplies air and fuel is supplied by a turbine driven pump to the intake ports of the combustion chambers. A portion of the gas exhaust and steam passing through the turbine is recirculated through the steam generating chambers. The major portion of the exhaust gas and steam from the turbine is discharged through a heat exchanger in a fluid containing chamber in communication, by piping, with the steam generating chambers.

3,739,576
COMBUSTION SYSTEM
John Chamberlain, Lake Park, Fla., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Aug. 11, 1969, Ser. No. 848,797
Int. Cl. F02c 3/24
U.S. Cl. 60—39.74 R 1 Claim



A combustion system for turbine engines wherein a plurality of ejector units are placed around the circumference of an annular burner. The airflow enters the inlet pipes of the ejector units and the air flow passing through these inlet pipes pumps fuel from an annular manifold in proportion to the local air flow thereby attempting to maintain a constant fuel-air ratio around the entire annular burner where ignition occurs.

3,739,577
HYDRAULIC SYSTEMS
Yukihiko Nagase, Mitsutoshi Yoshida, Yohichi Kimoto, and Toyoshi Sakano, all of Nagoya, Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 19, 1971, Ser. No. 134,966
Claims priority, application Japan, Apr. 21, 1970, 45/33465; Apr. 21, 1970, 45/33466
Int. Cl. F15b 15/18
U.S. Cl. 60—52 S 17 Claims

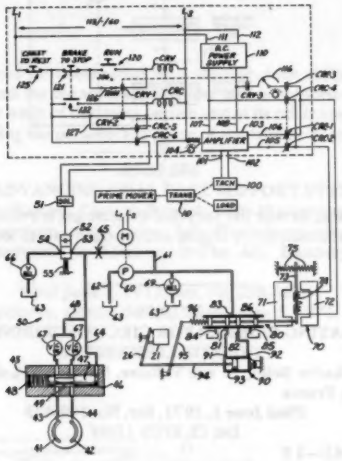


The invention is a hydraulic system which includes a hydraulic pump, which is adapted to discharge a predetermined amount of oil per unit displacement of an actuating means, connected to a control unit. The control unit includes a housing in which there are two oil chambers, a communicating path interconnecting the oil chambers and permitting restricted flow of oil between the oil chambers, a movable member and resilient means tending to restore the movable member to a neutral position with respect to the housing. In operation when the hydraulic pump is actuated by the actuating means oil enters one of the oil chambers, creating a pressure difference between the oil chambers and giving rise to a force which displaces the movable member by an amount proportional to the velocity of displacement of the actuating means. The hydraulic system is useful with a steering system of a vehicle.

3,739,578
SYNCHRONIZING CLUTCHING ARRANGEMENT FOR HYDROSTATIC TRANSMISSION
Eugene A. Roeske, Chicago, Ill., assignor to Wire Sales Company, Chicago, Ill.
Filed Mar. 3, 1972, Ser. No. 231,537
Int. Cl. F16h 39/10
U.S. Cl. 60—53 A 13 Claims

A synchronized clutching arrangement for a transmission having an hydraulically interconnected pump and motor of

the swash plate type with provision for short circuiting the hydraulic connection for effectively declutching the motor, including a servo device connected to the swash plate and a tachometer on the output shaft connected to the input of the servo device so that when the transmission is unclutched the servo device thereafter trackingly maintains the swash plate at an angle corresponding to the currently existing speed of the output shaft. A source of variable control voltage is provided for the servo calibrated in terms of output speed with means for simultaneously clutching the transmission and switching the input of the servo device from the tachometer to the



source of variable control voltage for shockless clutching followed by automatic subsequent change of the speed of the output shaft to the speed for which the variable control voltage has been set. Means are provided for braking the load to a stop by reducing the control voltage to zero with the transmission in clutched condition or for allowing the load to coast to a stop by putting the transmission into its unclutched condition. The arrangement is fail-safe in that the controls may be operated in any desired sequence and regardless of the condition of the load without establishing an unwanted or dangerous condition.

3,739,579

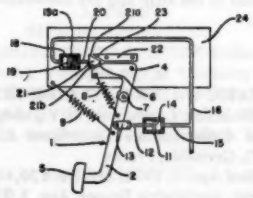
HYDRAULIC BRAKE MECHANISM

Russell L. Lutz, R.D. No. 1, Mohnton, Pa.

Continuation-in-part of Ser. No. 36,362, May 11, 1970, abandoned. This application July 26, 1971, Ser. No. 166,180

Int. Cl. F15b *7/00*

U.S. Cl. 60—54.6 R **8 Claims**



A hydraulic system actuator including a lever and structure defining a fulcrum for the lever and a link attached to the lever for actuating a pressure cylinder. The fulcrum of the lever is shifted relative to the lever in response to changing pressure within the hydraulic system created by rotation of the lever. The movement of the fulcrum increases the mechanical advantage of the lever as it approaches the end of its travel. The actuator has particular adaptability to vehicular brake systems.

3,739,580

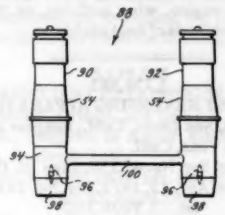
PROPULSION SYSTEM CONTROL

Aubrey M. Bland, St. Louis, and Vincent H. Zimmermann, Olivette, both of Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.

Filed, Mar. 10, 1971, Ser. No. 122,698

Int. Cl. B61c *29/04*

U.S. Cl. 60—204 **11 Claims**



A propulsion and control system that includes gas generator means which discharges high energy gases into ducting which is connected to at least two thrust units for converting the high energy gases into propulsive thrusts. A separate pressure controller is associated with each thrust unit for restricting the flow of high energy gases to the thrust unit and thereby increasing back pressure in the ducting upstream from the pressure controllers and at the discharge end of the gas generator means. The two pressure controllers are operable independently of each other and the operation of either one increases the back pressure. Contemporaneously, with the increase in back pressure the gas generator means automatically discharges gases at an even higher energy level and as a result the thrust unit downstream from the pressure controller which is not operated delivers greater thrust, while the thrust unit downstream from the operated pressure controller delivers about the same amount of thrust.

3,739,581

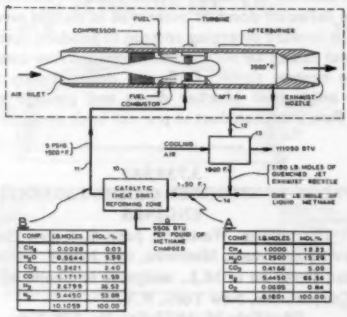
METHOD AND APPARATUS FOR PROVIDING JET PROPELLED VEHICLES WITH A HEAT SINK

Eliyahu Talmor, 1737 Minert Road, Concord, Calif.

Filed Jan. 19, 1972, Ser. No. 218,919

Int. Cl. F23r *1/08;* **C06d** *5/04;* **F02k** *3/10*

U.S. Cl. 60—206 **8 Claims**



Use is made in a jet propelled vehicle of the catalytic reforming of a hydrocarbon with steam and carbon dioxide, as supplied by the exhaust from the afterburner of the jet engine,

to generate heat sink capacities of the order of 6,000 BTU per pound of the fuel, e.g., methane, which is combined with the exhaust gases for passage to the reforming zone, or zones, which serve the desired heat sink function. In operation, a portion of the extremely hot exhaust gases from the engine afterburner, which contain steam and carbon dioxide but are as lean as practicable in oxygen, is first quenched by external or internal cooling and then admixed with the hydrocarbon fuel, which provides still further cooling. The resulting gaseous mixture is then passed over a catalyst in a reforming zone which operates endothermally. The gases from this zone are then passed to the aft fan of the engine which propels them into the afterburner for combustion and resulting thrust augmentation. The heat sink provided by the reforming zone can be utilized to take up heat from any desired points in the vehicle including the engine, wing surfaces, or the like, using direct or indirect methods of heat exchange.

3,739,582

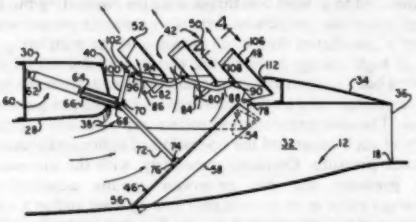
THRUST REVERSING APPARATUS

Richard L. Maison, San Diego, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Continuation of Ser. No. 45,138, June 10, 1970. This application Apr. 13, 1972, Ser. No. 243,881

Int. Cl. F02k *3/02*

U.S. Cl. 60—226 A **8 Claims**



Fan jet engine has cowl surrounding engine and terminating in jet exhaust nozzle. ELongate streamlined shroud surrounds fan and engine to define annular duct for fan air terminating forward of exit end of nozzle. Reverser includes peripherally arranged outflow passage means extending through inner and outer walls of shroud forward of its trailing edge. Plurality of sets of control doors peripherally arranged in passage means. Each set includes a blocker door pivoted aft to converge forward toward axis of engine, and combination of blocker doors forms frusto-cone when deployed to block rearward flow and divert it laterally to passage means. Each set also includes two or more deflector doors at outer wall of shroud pivoted aft to deploy to forward diverging attitude to produce cascade effect and direct exiting air outward with forward flow component to produce reverse thrust. Deflector doors deploy through a greater angle than blocker doors and passage means has greater flow area than duct to prevent back pressure in duct.

3,739,583

CONTROL OF NITROGEN OXIDES EMISSION FROM ENGINES

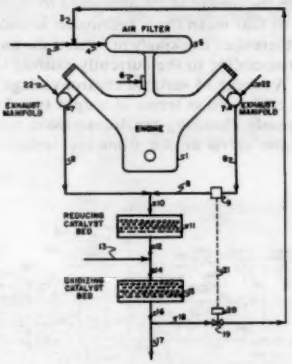
John F. Tourtellotte, Westfield, John S. Negra, South Plainfield; Abe Warshaw, Matawan, and John F. Villiers-Fisher, Kendall Park, all of M.J., assignors to Chemical Construction Corporation, New York, N.Y.

Filed Feb. 25, 1972, Ser. No. 229,276

Int. Cl. F02b *75/10*; **G01n** *3/14*; **F01n** *3/16*

U.S. Cl. 60—274 **14 Claims**

The emission of nitrogen oxides in engine exhaust gas is curtailed, by passing the engine exhaust gas through a catalyst bed for selective reduction of nitrogen oxides to nitrogen, and recycling a minor portion of the treated exhaust gas to the engine intake, so that the recycled exhaust gas is present during fuel combustion in the engine and nitrogen oxides formation is reduced.



3,739,584

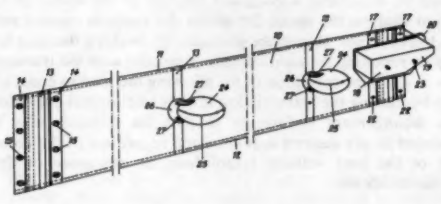
FLOATING BARRIER FOR CIRCUMSCRIBING OIL POOLS OR LIKE REFUSE

Marcel Andre Belin, 11 rue Voltaire, Nantes (44 Loire Atlantique), France

Filed June 1, 1971, Ser. No. 148,473

Int. Cl. E02b *15/04*

U.S. Cl. 61—1 F **3 Claims**



A floating barrier for circumscribing and trapping oil films or like refuse in harbors and other bodies of water comprises a strip of noncorrodible material such as stainless steel and pair of buoyant floats removably fitted at intervals on opposite sides of the strap so as to support it vertically in the body of water. Junction means interconnect the floats pairwise and are removably engaged through the strip. A pair of watertight stabilizing compartments is removably secured to opposite sides of an end portion of the strip and are connectible to a hauling or towing craft.

3,739,585

AUTOMATIC WATER GATE CONSTRUCTION

Jacques L. Dubouchet, Larchmont, N.Y., assignor to Societe Generale De Constructions Electriques Et Mechaniques (ALSTHOM), Grenoble, France

Filed Apr. 1, 1971, Ser. No. 130,419

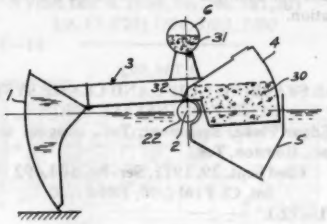
Claims priority, application France, Apr. 3, 1970, 7012267

Int. Cl. E02b *7/42*

U.S. Cl. 61—25 **11 Claims**

The gate pivot is formed by a rotatably mounted tubular beam on which the frame is mounted by means of bearing members which are provided on the frame and engage peripheral surface portions of the tubular beam spaced apart

at a sufficient angle, and which members are locked in such engagement by bolts that are secured to the frame and extend therefrom and into securement with the tubular beam along



lines located between radial lines through such surface portions. A tank for the sector float of the gate is supported at one end by the walls of the water course and at its other end by rollers engaging the peripheral surface of the tubular beam.

3,739,586

SELF-ADVANCING COAL FACE SUPPORT SYSTEM

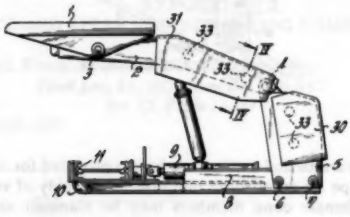
Karl-Heinz Wehner, Castrop-Rauxel; Willy Watermann, Dortmund-Lanstrop, and Gunter Bell, Horneburg, all of Germany, assignors to Klockner-Werke AG, Duisburg, Germany

Filed June 1, 1972, Ser. No. 258,867

Claims priority, application Germany, June 5, 1971, P 21 28 023.9

Int. Cl. E21d *23/00*

U.S. Cl. 61—45 D **3 Claims**



A self-advancing coal face support system includes support shields arranged side-by-side, each support shield comprising a front roof shield, a caving shield, a packing shield and a floor sill pivotally connected together. Each support shield is movable relative to a supporting frame for the face conveyor by means of hydraulic cylinders, the floor sill including a tapered front end portion which engages bearers on the frame. The packing shield and the caving shield both include laterally movable side shields movable under the action of hydraulic thrust pistons when a correction is to be effected in the direction of advance of the support system.

3,739,587

MINING APPARATUS

Horst Linke, Altluenen; Werner Karsten, Gelsenkirchen, and Helmut Albrecht, Duelmen, all of Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Westfalia, Germany

Filed Sept. 10, 1971, Ser. No. 179,350

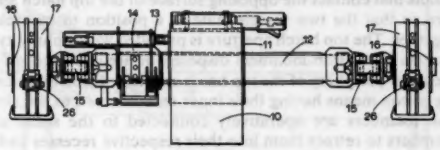
Claims priority, application Germany, Sept. 23, 1970, P 20 46 797.4

Int. Cl. E21c *29/02*

U.S. Cl. 61—45 D **9 Claims**

Mining apparatus usable with a conveyor and composed of a beam accommodating a conveyor drive unit and housings operably connected to each end of the beam.

Each housing either supports, or is connected to, a telescopic prop which enables the housing to be clamped in a fixed position. Each housing contains a piston and cylinder unit having its cylinder connected to a slide member guided for movement between two resilient guide rails. Two end plates connect to the beam, possible via articulated joints, and extend



through recesses in the housings. Each end plate is connected to the slide member in the associated housing so that the conveyor can be tensioned by extending the piston and cylinder units to displace the beam when the housings are clamped.

3,739,588

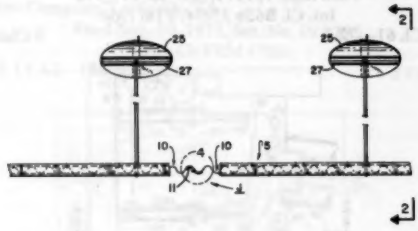
RESILIENT RETAINING WALL

Richard C. Schroter, Orinda, and David C. Thomas, Moraga, both of Calif., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

Filed June 30, 1971, Ser. No. 158,188

Int. Cl. E02d *5/06*

U.S. Cl. 61—49 **2 Claims**



A marine retaining wall and the like comprised of a series of hingedly interconnected corrugated metal sheets anchored in place by adjustable earth anchors, whereby adjacent corrugated sheets can move relative to each other in response to the normal movement of water, wave and soil without becoming disengaged from each other, fracturing, or losing their effectiveness in sealing the land off from the water.

3,739,589

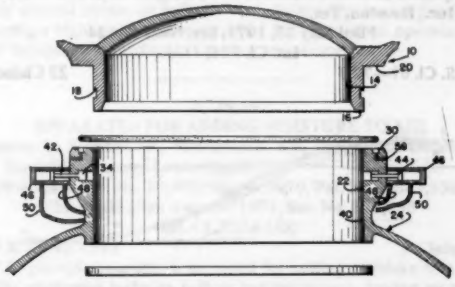
MATING SHEAR SEAL DEVICE FOR CONNECTING VESSELS AND THE LIKE TOGETHER

Russell C. Wolfe, Baltimore, Md., assignor to Dixie Manufacturing Company, Inc., Baltimore, Md.

Filed June 1, 1971, Ser. No. 148,378

Int. Cl. E05c *1/00*; B63c *11/32*

U.S. Cl. 61—69 R **2 Claims**



Means for quickly connecting two vessels and the like together in which one vessel is provided with a top hatch aper-

ture generally of cylindrical configuration, and in which another vessel is provided with a complementary extending tubular member which is inserted into the top hatch aperture. The other vessel is provided with outwardly extending flange means that contact the opposing surface of the top hatch aperture so that the two vessels mate in a position to be locked together. The top hatch aperture is provided with a plurality of arcuate shear slab members disposed in arcuate recesses on the inner periphery of the top hatch aperture. Radially extending piston means having their inner ends secured to the shear slab members are operatively connected to the shear slab members to retract them into their respective recesses and to actuate them radially inwardly toward the extending cylindrical portion of the second mentioned vessel, and into complementary peripheral recesses therein so as to lock the two vessels together. The top hatch aperture is further provided with liquid sealing means including resilient gasket means which bear against the shoulder of the other vessel and with fluid pressure supply means in communication with a recess in which said gasket means is disposed so as the force the gasket means into contact with the other vessel to provide a fluid tight and liquid tight seal there between.

3,739,590

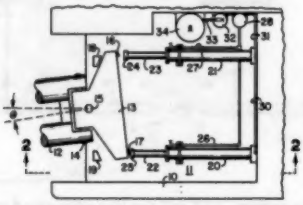
STINGER CONNECTION

John H. Whitfield, Jr., Houston, Tex., assignor to Esso Production Company, Houston, Tex.

Filed Sept. 7, 1971, Ser. No. 177,974

Int. Cl. B63b *35/04*; F16l *1/00*

U.S. Cl. 61—72.3 **9 Claims**



Apparatus for connecting a pipe discharge ramp or stinger to a lay barge or similar vessel comprises a connecting member mounted on said vessel for pivotal movement in a horizontal plane, means for applying substantially constant force to said connecting member to retard said movement, and means on said connecting member for attaching a stinger to said member for pivotal movement of the stinger in a vertical plane.

3,739,591

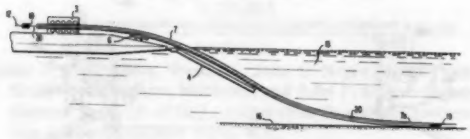
METHOD AND APPARATUS FOR EVALUATING OFFSHORE PIPELINE LAYING OPERATIONS

Raymond E. Jones, Houston, Tex., assignor to Brown & Root, Inc., Houston, Tex.

Filed May 28, 1971, Ser. No. 147,834

Int. Cl. F16l *1/00*

U.S. Cl. 61—72.3 **22 Claims**



Methods and apparatus for conducting evaluations of offshore pipe-line laying operations and characterized by the performance of inspection operations, in relation to submerged pipeline means, prior to the termination of a pipeline laying operation. The inspection operation is performed while a floating vessel means, effecting the pipeline laying operation, remains operable to lay and/or retrieve pipeline increment means containing a defect detected during the inspection operation.

3,739,592

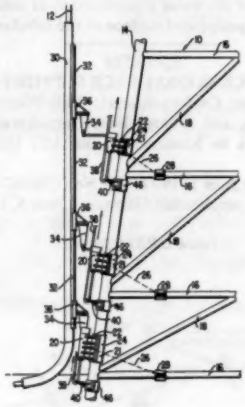
CONICAL STABBING GUIDE AND CLAMP SYSTEM FOR RISER PIPE INSTALLATION

William Edgar Plake, Beaumont, Tex., assignor to Brown & Root, Inc., Houston, Tex.

Filed Sept. 29, 1971, Ser. No. 184,692

Int. Cl. F16l *1/00*; E05d *1/06*

U.S. Cl. 61—72.1 **29 Claims**



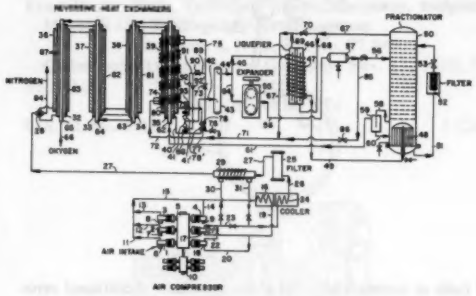
An apparatus and method are herein provided for installing a riser pipe on an offshore platform. A plurality of vertically aligned female cone members may be clamped along the length of the platform. A monorail may be secured to the riser pipe and aligned along the axis thereof. Mating male cone members may be slidably mounted on the monorail of the riser and roughly positioned for insertion into the female cones. A guide line may be fun from a surface winch through a dead man ring or sheave mounted on the platform beneath a female cone member and up through the cone member to connect with the lower end of the mating male cone member. The riser pipe may be supported by a surface crane and disposed with the lower end of each male cone positioned generally above a female cone. The riser pipe is lowered so that the male cones are partially inserted within the female cones. In this step, the guide line may be utilized as a positive control means of bringing the cones into alignment for proper mating engagement. After the cones are properly engaged, locking pins may be inserted through the lower portions of the male cones and a frictional connection between each male cone and the monorail released to slide the riser pipe downwardly to its final position. The riser pipe may be jetted into the water bed in the conventional manner. With the riser pipe buried in the water bed in the final position, a diver may retighten the frictional connection to lock the male cones to the monorail. Additional means may be provided for universally adjusting the connection so as to cure minor misalignments after the riser is in a final position. The relationship of the male and female cone members may be reversed so that the female cone is slidably mounted on the monorail of the riser pipe and the male cone is mounted on the platform. In this last configuration, it may be preferable to mount the mating cone members so they extend in an upwardly direction.

3,739,593

GAS SEPARATION SYSTEM

James J. Schauls, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis.

Filed Dec. 4, 1968, Ser. No. 781,201
Int. Cl. F25j *3/04, 3/03, 5/00*
U.S. Cl. 62—14 6 Claims



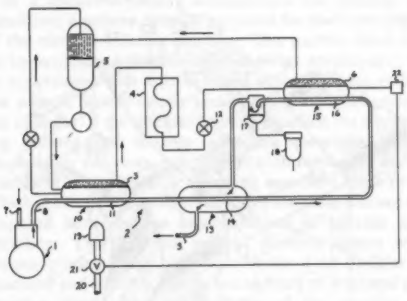
In a gas separation system utilizing reversing heat exchangers which employ a reheat stream to facilitate heat exchanger temperature control and cleaning, the improvement including at least a pair of particulate filters placed at the heat exchanger feed stream outlets arranged to automatically be cleaned by a portion of the reheat stream without producing objectionable pressure differentials within the gas separation system.

3,739,594

METHOD AND APPARATUS FOR DRYING COMPRESSED AIR

Charles E. Freese, 2916 Homer Avenue, Erie, Pa.

Filed Jan. 21, 1972, Ser. No. 219,657
Int. Cl. F25b *15/00*
U.S. Cl. 62—93 4 Claims



The heat of compression of compressed air heats the generator of an absorption refrigeration system to dry the air. An auxilliary heater for the generator supplies stand by heat when the compressor is not operating.

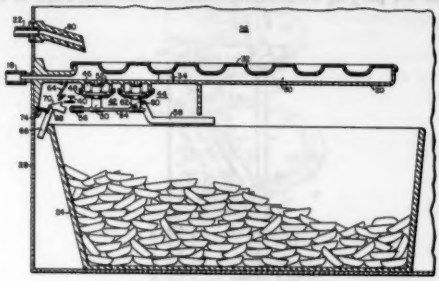
3,739,595

FLEXIBLE MOLD ICE MAKER CONTROL

Leland L. Learn, Pittsburgh, and William C. Moreland, II, Export, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 24, 1971, Ser. No. 183,433
Int. Cl. F25c *1/06*
U.S. Cl. 62—135 7 Claims

Energization of a thermostat reset heater for a flexible mold ice maker is controlled in accordance with the application of vacuum and pressure to the flexible mold so that premature termination of harvesting and fill operation is avoided. Energization of the reset heater is also controlled in accordance with the level of ice cubes in the receiving bin, and in accordance with the bin position.

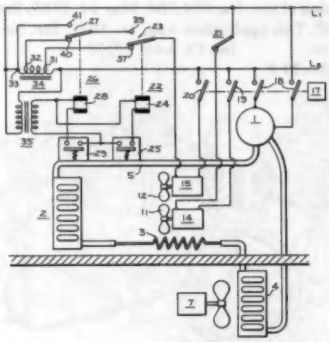


3,739,596

REFRIGERATION SYSTEM INCLUDING HEAD PRESSURE CONTROL MEANS

James L. Ballard, Ellicott City, Md., assignor to General Electric Company, Louisville, Ky.

Filed Nov. 10, 1971, Ser. No. 197,295
Int. Cl. F25d *17/00*
U.S. Cl. 62—158 3 Claims



A refrigeration system comprising an air cooled condenser, fan means for passing outdoor air over the condenser including a first fan operative only at higher outdoor temperatures, a second, multi-speed fan and control means responsive to the system high side pressure for controlling the second fan speed; the control means including a time delay relay means for assuring a high speed operation of the fan upon initial operation of the system regardless of outdoor temperatures.

3,739,597

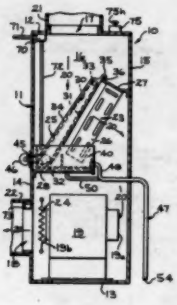
APPARATUS FOR ADDING MOISTURE TO AIR

James L. Schulze, Sr., Middletown, Ky., assignor to General Electric Company, Louisville, Ky.

Division of Ser. No. 34,495, May 4, 1970, Pat. No. 3,643,930.
This application Aug. 16, 1971, Ser. No. 172,255
Int. Cl. F25d *5/00*
U.S. Cl. 62—311 9 Claims

Improved apparatus is provided for adding moisture to air. The apparatus includes hollow cabinet means, having an air inlet and outlet, and humidifier means for adding moisture to an air stream flowing between the inlet and outlet. The humidifier means includes evaporative media means mounted

for movement across the air stream and through a moisture reservoir that is supplied with liquid, such as tap water or the like. In accordance with the present invention, means are provided for purging or draining fluidized material, such as tap water and the mineral salts precipitated therefrom, from the reservoir and these drain means include a fluid inlet that is connected to the reservoir via siphon means comprising conduit means including an inverted generally U-shaped section.



3,739,598

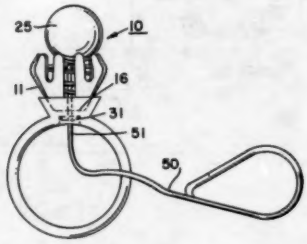
JEWELRY ARTICLE FOR INTERCHANGEABLE ORNAMENTS, AND MEANS FOR DISENGAGING SAID ORNAMENT

Edward Postel, 6330 Azalea Lane, Dallas, Tex.

Division of Ser. No. 824,504, May 14, 1969, Pat. No. 3,643,467. This application Aug. 16, 1971, Ser. No. 172,283

Int. Cl. A44c *17/02*

U.S. Cl. 63—29 R **3 Claims**



Disclosed is an interchangeable ornament mount for an article of jewelry having a head member defining a plurality of substantially separately operable pronged sections for gripping a removably inserted ornament inserted therein, a conically shaped spring disposed within said head member urging said ornament against the indented gripping surfaces of the prongs, an aperture being provided in a base portion of said head member for insertion of a tool to eject the ornament.

3,739,599

RESILIENT EARRING INCLUDING MEANS LIMITING PRESSURE ON THE EAR LOBE

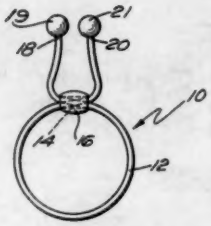
Anthony Melone, 40 Poppy Drive, Cranston, R.I.

Filed June 9, 1972, Ser. No. 261,447

Int. Cl. A44c *7/00*

U.S. Cl. 63—14 D **6 Claims**

An ear ornament having a length of wire bent upon itself to form a spring loop with each of the ends thereof bent upwardly in a curvature reversed from that of the spring loop. A tubular sleeve encircles the wire in the area where the ends of the wire pass each other in forming said loop, thereby preventing the loop from springing open and the ends of the wire passing back by each other. Structure is formed on each of the ends of the wire for engaging the ear lobe of a wearer therebetween, and this structure may be in the form of spherical balls or substantially flat plate members. Additional ornamental structure may be added to the ear ornament such as a second loop of wire that is slidingly secured to the bottom of the spring loop or such as ornamental structure attached to the bottom of the tubular sleeve.



3,739,600

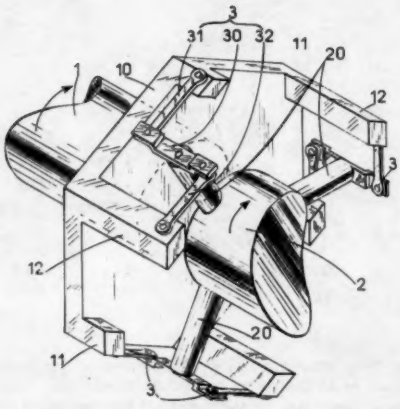
COUPLING FOR JOINING TWO SHAFTS LIABLE TO NON-ALIGNMENT AND TO DISPLACEMENT ALONG THEIR AXES, ABOUT A MEAN POSITION

Gerard Pere, Le Breuil, France, assignor to Creusot-Loire, Paris, France

Filed Sept. 28, 1971, Ser. No. 184,558

Int. Cl. F16d *23/00*

U.S. Cl. 64—19 **8 Claims**



A coupling for joining tow shafts liable to non-alignement and to displacement along their axes, comprising a plurality of deformable articulated systems for connecting the shafts, each having a lever pivoted at its centre on a radial pivot fixed to a first shaft, and two rods of equal lengths, each pivoted at one end on one end of the lever, extending in opposite directions on each side of the lever and having their other ends pivotably connected to the second shaft, the lengths of the rods and of the lever and the positions of the pivots being selected so that

the rods are substantially parallel to one another and perpendicular to the axis of the shaft to which they are connected when the shafts are in their mean relative positions.

3,739,601

JACQUARD-PATTERN ARRANGEMENT FOR CIRCULAR KNITTING MACHINES

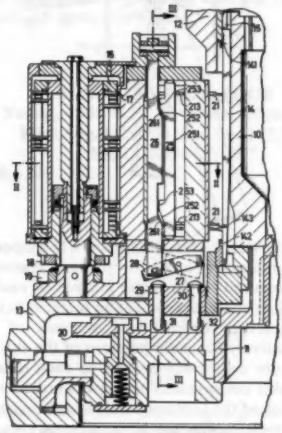
Ernst-Dieter Plath, Tailfingen/Wuertt, Germany, assignor to Mayer & Cie, Tailfingen/Wuertt, Germany

Filed Nov. 9, 1970, Ser. No. 87,949

Claims priority, application Germany, Nov. 11, 1969, P 19 56 581.2

Int. Cl. D04b *15/74*

U.S. Cl. 66—50 B **4 Claims**



In a Jacquard-pattern arrangement for circular knitting machines, a pattern drum is provided for each knitting system of the circular knitting machine. This pattern drum supports on its periphery a plurality of rods which are disposed thereon in accordance with a preselected pattern. These rods act on the pattern feet of needle jacks disposed on the periphery of the cylinder of the circular knitting machine via a corresponding plurality of slidable actuating members, which are disposed in two rows and parallel with respect to each other. Each one of the slidable actuating members has a projection which is adapted to cooperate with a movable control member disposed between two adjacent rows of slidable actuating members. This movable control member coacts with cam means rotating jointly with the cylinder of the circular knitting machine and which is positioned in front of a second cam also rotating jointly with the cylinder of the circular knitting machine, said second cam controlling the movement of the pattern drum.

3,739,602

DRIVING DISC FOR TOOTHED YARN CONTROLLER RING

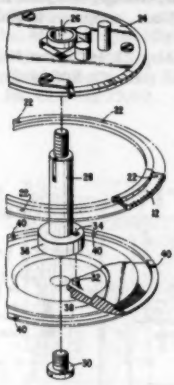
Paul J. Haas, High Point, N.C., assignor to The Singer Company, New York, N.Y.

Filed Apr. 5, 1971, Ser. No. 131,239

Int. Cl. D04b *15/02, 15/61*

U.S. Cl. 66—95 **3 Claims**

An inexpensive simply constructed disc member is provided to drive the toothed yarn controller ring of a circular hosiery knitting machine in place of the conventionally used bit-carrying dial member, when the knitting operation does not require



the use of bits, the disc member being adapted to couple directly to the yarn controller ring and being formed without bit-carrying grooves.

3,739,603

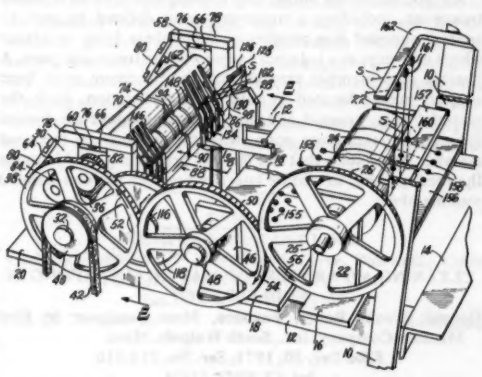
APPARATUS AND METHOD FOR FEEDING STRANDS, AND ELEMENTS THEREOF

Morris Philip, 2519 Grand Avenue, Bronx, N.Y.

Filed Apr. 26, 1971, Ser. No. 137,430

Int. Cl. D04b *15/48*

U.S. Cl. 66—132 **30 Claims**



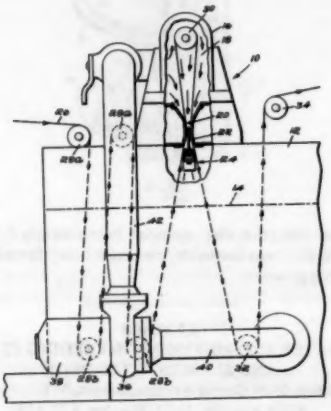
The apparatus comprises rotatable tension equalizing cylinder, guides directing strands from a strand supply about and in contact with at least a portion of the cylinder so that the cylinder acts as a windlass to substantially equalize the tension in the strands, an assembly of feed rollers having axially spaced apart strand feeding sections and strand non-feeding sections, a movable bar parallel to the axis of the feed rollers, a plurality of guides pivotally mounted on and along the length of the movable bar, a cam for oscillating the movable bar along its length part of the distance through which it is movable, a lever for adjusting the position of the movable bar in a normal position where the cam can oscillate the movable bar and the guides direct the strands to the feeding sections of the rollers, or in an adjusting position where the guides can be individually pivoted to be aligned with either a feeding section or a non-feeding section, or in a non-feeding position where all the guides are aligned with non-feeding sections, the strands being guided from the feed rollers to the knitting stations of a multifeed knitting machine, and drive means for rotating the cylinder and rollers, the cylinder being rotated at a lineal rate greater than that of the feed rollers.

3,739,604

WET PROCESSING APPARATUS

Jerome M. O'Toole, Orange, and John B. McManus, Jr., Worcester, both of Mass., assignors to Rodney Hunt Company, Orange, Mass.

Filed Aug. 23, 1971, Ser. No. 174,024
Int. Cl. B05c 3/05
U.S. Cl. 68—3 SS 3 Claims



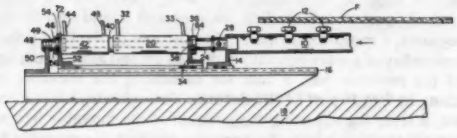
An apparatus for subjecting moving material to a liquid treatment, including a treatment zone defined in part by spaced opposed non-parallel wall members lying in planes which converge at a location exterior of the treatment zone. A flexible reed member extends into the treatment zone from support means located at said exterior location. Both the material being treated and the processing liquid are passed through the treatment zone, with the position of the reed member being such that the flow of processing liquid causes the reed member to vibrate laterally between the non-parallel wall members.

3,739,605

CLEANING APPARATUS FOR MATERIALS MOVING IN ENDLESS PATH

Donald Brooks Baker, Foxboro, Mass., assignor to Bird Machine Company, Inc., South Walpole, Mass.

Filed Dec. 30, 1971, Ser. No. 214,016
Int. Cl. B05b 13/04
U.S. Cl. 68—20 18 Claims



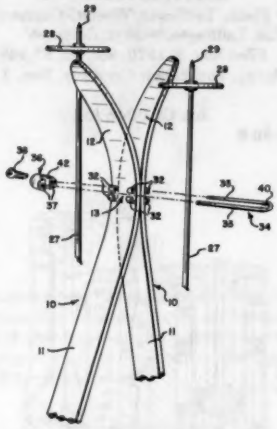
Apparatus for cleaning materials moving in an endless path by the application and/or extraction of liquid, has a cleaning member with ports through which the liquid passes that is reciprocated across the path of travel of the material, and reversal control means that causes the reversals of direction of the reciprocatory movement of the cleaning member to take place at a plurality of different points across the path.

3,739,606

ANTI-THEFT DEVICE FOR SKIS

Ewald D. Pyzel, 3430 Cashill Boulevard, Reno, Nev.

Continuation-in-part of Ser. No. 121,736, March 8, 1971, abandoned. This application Feb. 11, 1972, Ser. No. 225,585
Int. Cl. E05b 73/00
U.S. Cl. 70—58 9 Claims



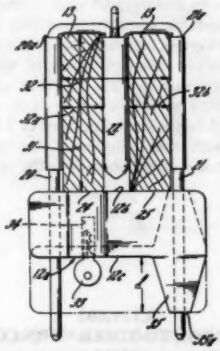
An anti-theft device for skis comprises a U-shaped bolt that is received and releasably locked in place in transverse bolt-receiving slots secured to the upper surface of each ski, said bolt-receiving slots being disposed at an intermediate point on the upwardly curved forward end portions of said skis, whereby the relatively flat main portions of the skis are maintained at an acute angle with respect to each other thereby rendering the skis conspicuous and awkward to carry. The transverse portion of the U-shaped bolt and the corresponding portion of the lock means are advantageously each formed with a perpendicular pole-receiving slot, each slot receiving the shaft of one pole of a pair of ski poles thereby locking the poles to the skis.

3,739,607

LOCK FOR SKIS

Richard W. Smedley, 1008 Alann Drive, Joliet, Ill.

Filed Mar. 6, 1972, Ser. No. 231,908
Int. Cl. E05b 67/22, 73/00
U.S. Cl. 70—18 12 Claims



An improved lock for skis is provided, the lock including a shackle shaped to fit snugly around the midportions of the skis and a detachable body for locking engagement with the shackle to prevent removal of the skis from the lock. The lock body includes a projection extending away from the retained skis and outwardly from the side of the body into which the lock key is inserted (or the side which carries a combination dial or the like). The projection facilitates proper orientation

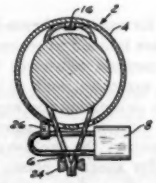
of the lock body with respect to the shackle when the lock is being placed on the skis so that the keyway (or combination dial) carried by the lock body faces outwardly to permit ready access for opening the lock. In the event that the lock body should be improperly oriented and backwardly installed on the shackle, with the keyway (or combination dial) facing inwardly toward the skis rather than outwardly, the projection of the lock body provides a clearance space between the main portion of the body and the skis to permit removal of the skis and to provide access to the keyway (or combination dial) so that the lock may be opened, and the lock body correctly installed on the shackle. In one form of the invention notches carried on each of the legs of the lock shackle are offset with respect to notches on the other leg so that the shackle and body when coupled may be secured more tightly against a given pair of locked skis. The shackle legs may also be differentially marked to permit the lock user to associate the spacing of notches on a given leg with the requirements for firmly securing a given pair of skis.

3,739,608

AUXILIARY DOOR LOCK

Henry J. Young, 1541 N.E. 27 Street, Wilton Manors, Fla.

Filed Aug. 18, 1971, Ser. No. 172,718
Int. Cl. E05b *13/00*
U.S. Cl. 70—209 **3 Claims**



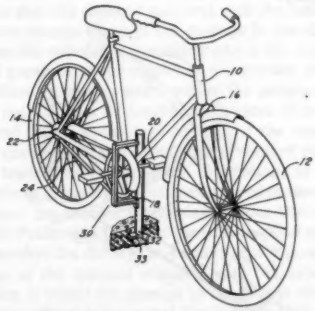
An auxiliary door lock including a generally cup-shaped door knob cover, a resilient band held along the inner wall surface of the cover, and a locking means connectable adjacent the ends of the band that project from the cover to hold the band in tension in engagement with the door knob shaft behind the door knob. The door knob cover includes a band connecting means for holding one portion of the band against a portion of the inner wall surface opposite the band exit opening.

3,739,609

BICYCLE LOCK

Edward A. Kaufmann, 2785 N. Speer Boulevard, Denver, Colo.

Filed Feb. 4, 1972, Ser. No. 223,419
Int. Cl. E05b *71/00*
U.S. Cl. 70—234 **7 Claims**



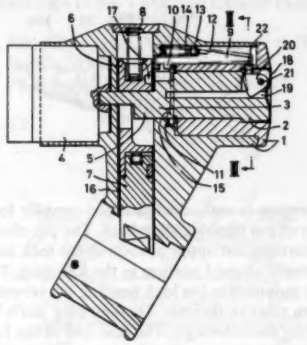
A bicycle lock assembly, which is secured to the ground or bicycle stand, having a strap metal retainer, locks around the bicycle frame and pedal sprocket, making unauthorized removal of the bicycle extremely difficult.

3,739,610

LOCKING APPARATUS COMBINED WITH IGNITION SWITCH IN A MOTORCAR

Shigenobu Kuroki, Miyazaki, Japan, assignor to Kabushiki Kaisha Honda Rokku, Miyazaki-gun, Miyazaki-ken, Japan

Filed July 16, 1971, Ser. No. 163,302
Claims priority, application Japan, July 22, 1970, 45/63519
Int. Cl. B60r *25/02*
U.S. Cl. 70—252 **9 Claims**



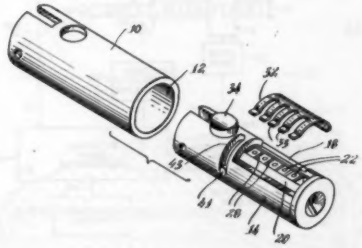
A locking apparatus in a motorcar comprises an operating portion connected between a cylinder lock and an electric ignition switch, the operating portion acting on a locking member which is moved back and forth by rotation of the operation member between a locking position and a released position. An engaging member is advanced by the rotation of the cylinder lock to engage the locking member in the released position and prevent movement thereof to the locking position. A stop member is arranged to project when a key is inserted into the lock to block return movement of the engaging member. When the key is removed, the stop member returns to its original position and allows the engaging member to move and free the locking member for movement to its locking position.

3,739,611

TAMPER RESISTANT LOCK

Vladimir Ignatjev, 39 Ledgewood Drive, Norwalk, Conn.

Filed July 31, 1972, Ser. No. 276,741
Int. Cl. E05b *47/00, 29/02*
U.S. Cl. 70—364 R **12 Claims**



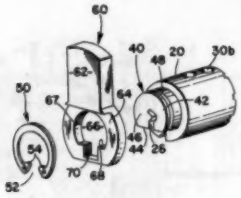
A tamper-proof key-operated lock is provided. The check point for the lock is displaced from the locked position, and the lock tumblers, while biased when the lock is in the locked position, are not biased at the check point. For preferred embodiments, a holding force is applied to the tumblers as they are moved from the locked position to the check point to prevent spurious movement of the tumblers. A one-piece, stationary biasing spring is also provided to reduce the cost of the lock.

3,739,612

KEY PLUG ASSEMBLY

Jerald Schultz, Woodmere, N.Y., assignor to Eaton Corporation, Cleveland, Ohio

Filed July 22, 1971, Ser. No. 165,007
Int. Cl. E05b 9/00
U.S. Cl. 70—380 2 Claims



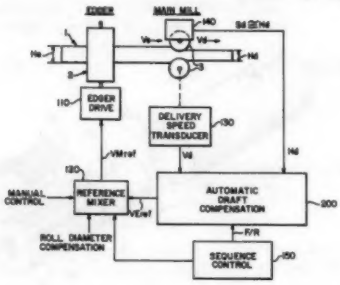
This invention is embodied in a pin tumbler lock having a multiplicity of pin tumbler chambers. The pin chambers comprise two portions, an upper portion in the lock housing and a lower, normally aligned portion in the key plug. The key plug is rotatably mounted in the lock housing but is restrained from axial motion relative thereto. The key plug has a keyway axially extending therethrough. The rear end of the key plug is of partially circular cross-section having a substantially straight surface formed by the chord joining the two ends of the arc formed by the partially circular section. The straight surface is generally perpendicular to and bisected by the keyway. The rear end of the key plug has an annular recess in which a retainer is received. The retainer has a side opening defined by two inwardly extending lugs which coact with the straight surface of the key plug rear end to register the side opening with the keyway for all rotational positions of the key plug.

3,739,613

AUTOMATIC DRAFT COMPENSATION FOR REVERSING MILL EDGER DRIVE

Leonard P. Gripp; Norman L. Kincaid, and Melvin A. Hensleigh, all of Buffalo, N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 9, 1972, Ser. No. 224,893
Int. Cl. B21b 37/00
U.S. Cl. 72—19 9 Claims



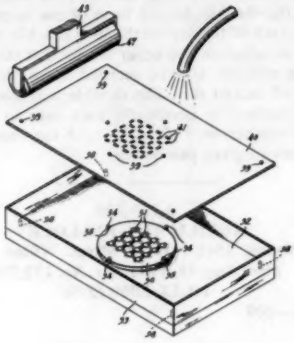
An edger mill velocity reference signal is developed as a function of the draft which occurs during the forward or odd pass through a reversing mill where the entry thickness of the material to be rolled is set during the reverse or even pass of the mill. The draft compensation necessary to adjust the edger drive speed is obtained, in the preferred embodiment, by computing the ratio of the reverse pass screwdown position to the following forward pass screwdown position.

3,739,614

EXPLOSIVE METAL-WORKING PROCESS

Benjamin Howell Cranston, Trenton, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.

Division of Ser. No. 68,431, Aug. 31, 1970, which is a continuation-in-part of Ser. No. 6,829, Jan. 29, 1970, abandoned. This application Nov. 26, 1971, Ser. No. 202,304
Int. Cl. B21d 26/02; B21j 5/04
U.S. Cl. 72—56 13 Claims



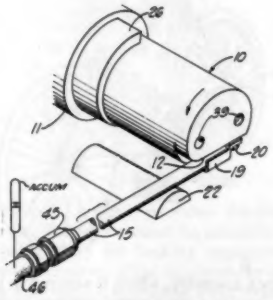
First workpieces, for example, beam-leaded integrated circuits, and the like, are bonded to second workpieces, for example, metallized ceramic substrates by first depositing a quantity of primary explosive, such as lead azide, onto each beam lead and then detonating the explosive to explosively bond the integrated circuits to the substrate. In another embodiment of the invention, the explosive bonding force is applied through a buffer sheet of plastic or metallic material which protects the surface of the substrate from contamination and which, in addition, dampens the shock of the explosion. In yet another embodiment of the invention, metal conductive paths are explosively bonded directly to a ceramic or glass substrate to form a "printed circuit pattern." The same techniques are used to manufacture resistors, capacitors, inductors, etc. In another embodiment in an explosive metal-working process the explosive charge is applied to the workpiece through apertures in a stencil or through windows of a silk-screen to form a plurality of discrete explosive charges.

3,739,615

METHOD OF MAKING WRINKLE-FREE THIN-WALLED COILED TUBING

Ronald F. Tressel, 6132 N. Starcrest Drive, Glendora, Calif.

Filed June 1, 1971, Ser. No. 148,406
Int. Cl. B21d 39/08; B21f 3/04
U.S. Cl. 72—57 7 Claims



A method of coiling thin-walled tubing into a small diameter coil free of wrinkles or distortion from end to end thereof.

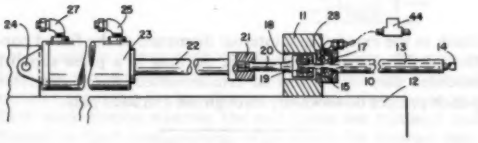
Tubing of the required length is maintained pressurized with liquid to substantially the yield point of the material thereby placing the tube wall in high tensile stress longitudinally and circumferentially and maintaining the tubing straight until it is progressively formed into a coil without the use of clamps, dies or tools other than a rotary mandrel. The method technique permits the formation of multiple layer coils using an inner layer to support the formation of a second layer of convolutions.

3,739,616

APPARATUS FOR AND METHOD OF FORMING A TUBULAR METAL BLANK INTO A TAPERED TUBE ON A TAPERED MANDREL

Raymond A. Matthews, Palos Verdes Estates, Calif., assignor to Reynolds Metals Company, Richmond, Va.

Filed Sept. 21, 1971, Ser. No. 182,403
Int. Cl. B21d *39/08*; B21c *1/24*, *3/06*
U.S. Cl. 72—57 **7 Claims**



Apparatus for forming a tubular metal blank into a tapered tube on a tapered mandrel, comprising a tapered mandrel and a die assembly through which the tapered mandrel with the tubular metal blank thereon is adapted to be advanced to form the blank into a tapered tube, the die assembly comprising a die having a passage therethrough, the die being composed on non-metallic plastic material capable of being repeatedly deformed from its condition of repose during the forming operation and returned to its condition of repose, a housing in which the die is mounted and means for applying fluid pressure in the housing against the outside of the die to collapse the tubular metal blank about the mandrel as the blank and mandrel pass through the die, the transverse size of the passage in the die when the die is in repose being intermediate, preferably substantially halfway between, the transverse size of the mandrel with the blank collapsed thereabout at the smaller end of the tapered mandrel and the transverse size of the mandrel with the blank collapsed thereabout at the larger end of the tapered mandrel. Also a method of forming a tubular metal blank into a tapered tube on a tapered mandrel, comprising disposing the tubular metal blank about the tapered mandrel, relatively advancing the tapered mandrel with the tubular metal blank thereon and a die as above described so that the tapered mandrel with the tubular metal blank thereon moves through the passage in the die and the die collapses the tubular metal blank about the mandrel, applying fluid pressure to the die when the portion of the mandrel of smallest transverse size is within the passage in the die to contract the die from its condition of repose to collapse the tubular metal blank about that portion of the mandrel and controlling the fluid pressure when the portion of the mandrel of greatest transverse size is within the passage in the die to permit the die to expand from its condition of repose yet effectively collapse the tubular metal blank about that portion of the mandrel. Preferably the fluid pressure applied to the die is controlled so that the die is in its condition of repose when the mid portion of the tapered mandrel with the tubular metal blank thereon is within the passage in the die yet the die effectively collapses the tubular metal blank about that portion of the mandrel.

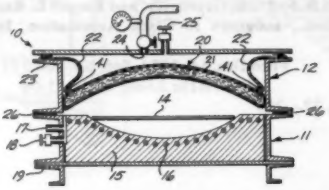
The housing preferably has an opening therethrough constituting a guideway through which the tapered mandrel with the tubular metal blank thereon passes in advancing to the die, the guideway having a transverse size and shape of the tubular metal blank whereby to remove or flatten down outwardly projecting shear fins at the ends of the tubular metal blank to prevent the shear fins from damaging the die. The guideway desirably flares from a transverse size and shape substantially the same as the transverse size and shape of the tubular metal blank adjacent the die to relatively great transverse size more remote from the die.

3,739,617

HIGH TEMPERATURE VACUUM CREEP FORMING FIXTURE

Ladislav M. Stejskal, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Sept. 21, 1970, Ser. No. 73,927
Int. Cl. B21d *22/12*
U.S. Cl. 72—63 **4 Claims**



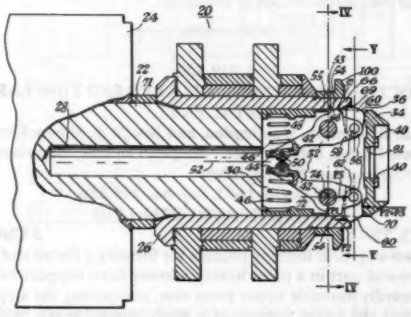
A high temperature vacuum creep forming fixture is disclosed comprising a vacuum chamber, a die with heating electrodes therein for receiving a metallic blank, and a high heat resistant forming diaphragm for pressing the metallic blank over said hot die for forming the blank into the desired part, and for raising the diaphragm clear of the die. A new heat resistant diaphragm per se, is disclosed comprising a plurality of interconnected elongated modules of high heat resistant insulating material secured to a plurality of two sheets of heat resistant materials, one sheet being of aluminized asbestos cloth for reflecting the heat back and the other sheet or sheets being of fiberglass reinforced silicone rubber for providing high strength and flexibility in the diaphragm for forming and lifting a highly efficient heat insulating diaphragm. Alternatively, a ring spring may be placed over the diaphragm for urging the periphery thereof outwardly.

3,739,618

AUTOMATIC CLAMPING AND LOCKING APPARATUS

Herbert Lemper, Bethel Park, Pa., assignor to Mesta Machine Company, Pittsburgh, Pa.

Filed Feb. 22, 1972, Ser. No. 228,121
Int. Cl. B21b *31/08*
U.S. Cl. 72—239 **15 Claims**



An automatic clamping arrangement for clamping a sleeve and the like onto a shaft and the like includes at least two

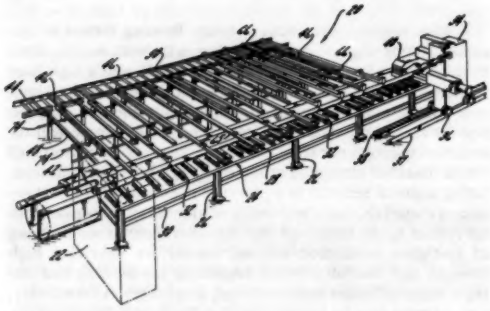
levers pivotally mounted on said shaft and disposed in chamber means therein. The levers are disposed for generally opposed movement toward and away from the sleeve when the latter is mounted upon the shaft. Biasing means are coupled to each of the levers for angularly displacing the levers about their pivot mountings such that a portion of each of the levers is advanced toward an adjacent surface of the sleeve. A clamping projection on each of the lever portions is disposed for bearing contact with said sleeve surfaces upon pivoting of the levers by the biasing means. The chamber means communicate through recess means opening onto a surface of the shaft for insertion of a tool generally between opposed second portions of the levers to pivot the levers in an opposite direction against the action of the biasing means to withdraw the clamping projections from the sleeve surfaces.

3,739,619

AUTOMATIC EXTRUSION HANDLING SYSTEM

Richard D. Follrath, Greenville, and Russell L. Race, Ada, both of Mich., assignors to Clark Automation, Inc., Belding, Mich.

Filed Dec. 16, 1971, Ser. No. 208,577
Int. Cl. B21c *23/00*; B21d *25/00*
U.S. Cl. 72—255 **8 Claims**



An automatic extrusions handling system which requires a minimum of plant space and labor and wherein extrusions are cooled, cut and stretched on and directly next to the run-out table associated with the extrusion press. Also disclosed is an extrusion loading and unloading apparatus for removing cooled extrusions from the run-out table, transferring them directly to the stretchers and simultaneously removing stretched extrusions from the stretchers with the transfer motions being in a generally rectangular path that prevents jogging of the extrusions out of alignment.

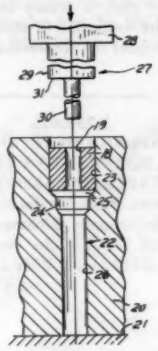
3,739,620

PROCESS FOR FORMING A FLARED END TUBULAR METAL PART

William D. Jesmore, Huntingdon, and Joseph A. Simon, Grosse Pointe Farms, both of Mich., assignors to U.S. Manufacturing Corporation, Detroit, Mich.

Filed Jan. 6, 1972, Ser. No. 215,850
Int. Cl. B21c *23/00*; B21b *17/02*
U.S. Cl. 72—256 **3 Claims**

A two-step cold forming process for forming a flared end tubular metal part in a press having a lower fixed support and a downwardly movable upper press ram, comprising the step of extruding the lower portion of a short tubular blank, whose diameter is approximately equal to the diameter of the flared end of the part, into approximate finished length and diameter by means of pressing downwardly an elongated, cylindrical punch, mounted upon the press ram, against and through the blank positioned in a flared diameter, vertically axised, die opening in a die mounted upon the press support, and thereafter, the step of expanding the upper portion of the



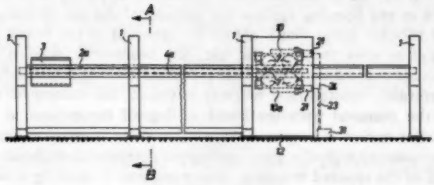
blank to the exterior and internal diameters of the flared portion of the part in a second die opening in a press support mounted die, with a second ram mounted, flared diameter punch pressed downwardly through the extruded part.

3,739,621

METAL DRAWING MACHINE

Hans Pfeiffer, Solingen-Wald, Germany, assignor to Th. Kieserling & Abrecht, Solingen, Germany

Filed May 13, 1971, Ser. No. 143,019
Claims priority, application Germany, May 19, 1970, P 20 24 273.3
Int. Cl. B21c *1/28*
U.S. Cl. 72—287 **9 Claims**



Draw bench for rods and pipes having a carriage movable axially on a bed. The carriage is moved back and forth by compression and tension rods arranged in the machine bed. One end of the rods connects to the carriage and the opposite end is interposed between a frictional roller drive secured at a fixed location.

3,739,622

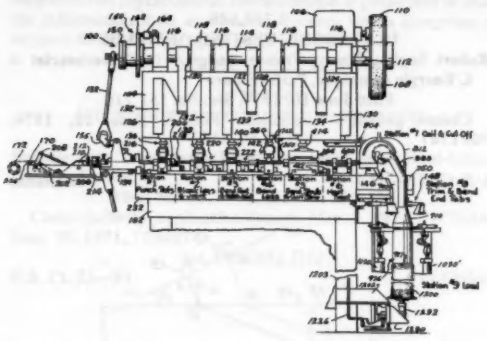
MACHINE FOR FORMING PISTON RING SPACER-EXPANDERS FROM STRIP STOCK

Roy E. Overway, Grand Haven, Mich., assignor to Sealed Power Corporation, Muskegon, Mich.

Division of Ser. No. 39,498, May 21, 1970, Pat. No. 3,646,797.
This application Nov. 24, 1971, Ser. No. 202,037
Int. Cl. B21d *41/02, 28/00*
U.S. Cl. 72—316 **7 Claims**

A machine for making spacer-expanders for piston oil rings of the type described in United States Pat. No. 3,477,732. The machine comprises a punch press having a plurality of stations through which strip stock is fed progressively in accurately predetermined increments, the strip stock being worked

between dies at each station to transform the strip stock into completed rings. The press includes one or more punching stations where the strip stock is pierced and blanked, one or more forming stations where the pierced and notched strip is bent to form the spring legs of the spacer-expander and then curled into a channel-shaped cross-section, a coiling station where the channel-shaped stock is fashioned into a coil, and a



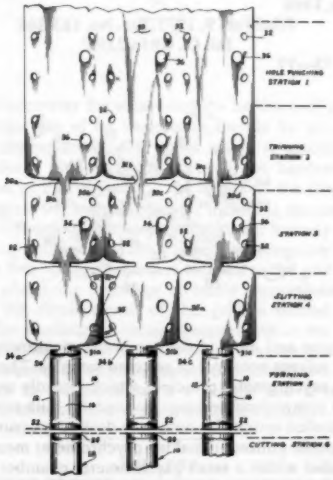
cut-off station where each coil is sheared from the strip to form the semi-finished ring. The press also includes a special transfer apparatus for transferring the semi-finished ring to a final work station wherein the end joints are trimmed and formed to final configuration, after which the finished rings are loaded automatically in stacked relation on a cylindrical mandril.

3,739,623

METHOD OF MAKING HINGE BRACKETS

Hyman Kramer, c/o Hy Kramer Enterprise Inc., 1457 Basset Avenue, Stamford, Conn.

Filed May 26, 1971, Ser. No. 143,710
Int. Cl. B21d *28/00*
U.S. Cl. 72—339 **8 Claims**



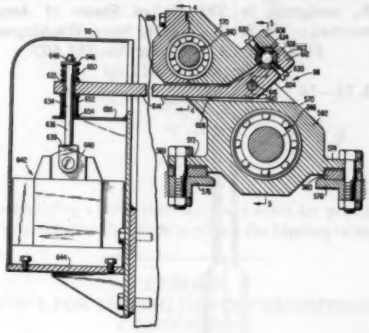
A method of making stamped and formed hinge brackets for tubular metal furniture and other metal stampings having circular (cylindrical) holes, featuring the formation of circular holes in the finished product by performing the steps of punching elliptical holes in a metal blank and then compressing the blank along the major axes of the elliptical holes in order to induce a flow of metal in the direction of the minor axes of said holes, thereby shortening the major axes and transforming the holes into circular configuration.

3,739,624

PIPE BLANK CLAMP

Alexandr Ivanovich Tselikov; Vsevold Vladimirovich Nosal, and Vadim Anatolievich Verderevsky, all of Moscow, U.S.S.R., assignors to Vsesojuzny Naucho-Issledovatelsky and Proektnokonstruktorsky Institute Metallurgicheskogo Mashinostroeniya, Moscow, U.S.S.R.

Filed May 25, 1970, Ser. No. 40,131
Int. Cl. B21b *25/00*
U.S. Cl. 72—422 **15 Claims**



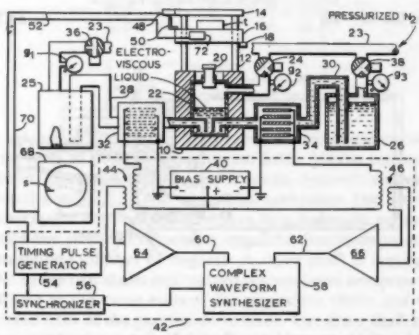
A pipe blank clamp assembly, as part of a cold rolling, thin-walled pipe mill assembly, is located between the end of the blank feed chuck feed path and the input side of the mill working zone to clamp a pipe blank against axial displacement during certain intermediate mill operations. The clamp has a heavy body part which includes flanges to mount the clamp on a mill table and contains retainers for end bearings for various mill operating shafts. The heavy body part and a short arm of a long operating lever provide powerful jaws for gripping the exterior of a pipe blank. The operating lever is attached via a resilient lost motion spring connection to a solenoid operator.

3,739,625

SHOCK TESTING MACHINE

Carroll R. Roberts; Ramon L. Glidden, both of Tulsa, Okla., and Patrick C. Molloy, North Edwards, Calif., assignors to Avco Corporation, Tulsa, Okla.

Filed Sept. 21, 1971, Ser. No. 182,422
Int. Cl. G01n *3/08*
U.S. Cl. 73—12 **13 Claims**



A shock testing machine is described which has the capability of selectively programming an infinite variety of shock pulse forms to be induced into a test specimen. The test specimen is mounted on a carriage which impacts a piston

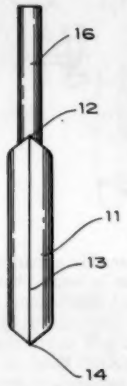
slidably mounted in a cylinder forming a part of the reaction mass base of the machine. Gas pressure, within the cylinder, provides a resilient force on the piston and is controlled by the scheduled flow of an electro-viscous liquid into and out of the cylinder under the influence of variable electrical field means.

3,739,626

METHOD FOR MEASURING LIQUID PROPELLANT STABILITY

George W. Brudette, and Dean H. Couch, both of China Lake, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 22, 1971, Ser. No. 182,607
Int. Cl. G01f *17/00*
U.S. Cl. 73—16 **1 Claim**



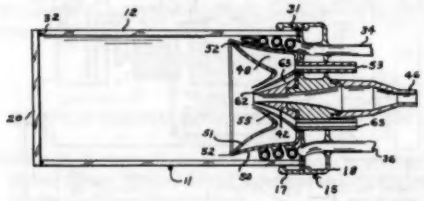
Metal, weld-sealed apparatus for use in studying the stability of liquid rocket propellants is disclosed. Pressure data on liquid propellants are obtained by placing a known volume of propellant in apparatus of known volume, bringing the apparatus and its contents to thermal equilibrium at a predetermined temperature and measuring the volume change of the apparatus.

3,739,627

GAS PARTICLE ACCUMULATOR, TREATING AND TEST APPARATUS

George A. Klingler, 300 Patterson Road, Dayton, Ohio

Filed Nov. 4, 1971, Ser. No. 195,551
Int. Cl. B01d *45/12*
U.S. Cl. 73—28 **2 Claims**



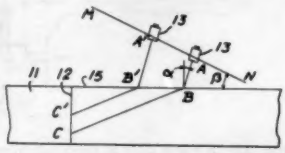
A particle accumulator display having a closed transparent chamber with a plurality of input nozzles to provide a vortex flow within the chamber. An ejection nozzle is centrally located within the chamat the same end as the inputozzles. A flow stabilizer is positioned between the input nozzles and the ejection nozzle. The flow stabilizer is spaced from the ejection nozzle to provide an annular channel adjacent the ejection nozzle. A tubular member communicates with the annular channel to permit material to be inserted into the closed chamber to treat the collected column for various tests. In a second embodiment, a second channel and accs tube is provided so that temp rature, pressurer other probes can be inserted into t chamber adjacent the collected column.

3,739,628

ULTRASONIC TESTING OF WELDS

Robert Saglio, Massy, France, assignor to Commissariat A L'Energie Atomique, Paris, France

Filed June 10, 1971, Ser. No. 151,718
Claims priority, application France, June 12, 1970, 7021747
Int. Cl. G01n *29/04*
U.S. Cl. 73—67.7 **12 Claims**



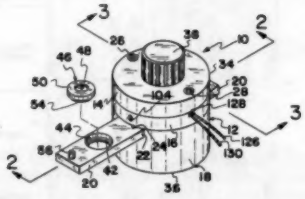
In a method of testing for flaws in metallurgical welds using ultrasonic waves, the interval of time between sending a wave and receiving a flaw echo is made constant by appropriately moving the or each ultrasonic wave sensor relative to the workpiece under inspection, for each measurement. The or each sensor is moved along a rectilinear path forming an angle with the surface of the workpiece which is a function of the angle of incidence of the ultrasonic waves and of the speeds of the waves in the workpiece and the medium above the surface.

3,739,629

PSYCHROMETER AND METHOD

Eric C. Campbell, Providence, Utah, assignor to Wescor, Inc., Logan, Utah

Filed Feb. 9, 1971, Ser. No. 113,846
Int. Cl. G01n *25/62*
U.S. Cl. 73—77 **9 Claims**



Apparatus and method for use in the measurement of the water or solvent potential of selected samples. The apparatus utilizes a psychrometer principle, which, broadly speaking, relies upon comparison between wet and dry bulb temperatures in a controlled system for obtaining desired measurements. A thermocouple utilized in making psychrometer measurements is concealed within a small psychrometer chamber and is exposed to the sample during testing, being sealed from surrounding environment. The psychrometer chamber is formed by a sample holder and metal heat sink components respectively disposed above and below the sample holder and serve to achieve rapid thermal equilibrium. The interior water potential measuring apparatus including the thermocouple is also thermally insulated to minimize ambient temperature effects. Samples to be analyzed are placed within a cup of a disc-shaped sample holder resting in a slide which can be displaced from side-to-side to position the sample and sample holder

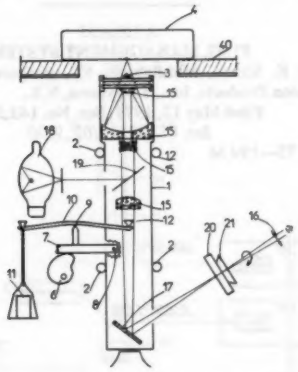
medially within the measuring apparatus at the psychrometer chamber. The tightening of a screw insures that the psychrometer chamber is sealed from the surrounding environment, following which vapor pressure equilibration and temperature equilibrium result. A second thermocouple may be provided giving a temperature reading for use in analysis of the electrical output of the psychrometer thermocouple. The output of the psychrometer thermocouple is presented in usable information form at a microvoltmeter which comprises a readout device for the sampling psychrometer.

3,739,630

MICRODUROMETER WITH AUTOMATIC CALCULATION

Helenio Llop, Montreuil, France, assignor to Creusot-Loire, Paris, France

Filed Mar. 3, 1972, Ser. No. 231,490
Claims priority, application France, Mar. 5, 1971, 7107616; Sept. 28, 1971, 7134874
Int. Cl. G01n *3/42*
U.S. Cl. 73—81 **11 Claims**



A microdurometer for measuring the hardness of a sample by the production of an impression therein by means of a pyramidal diamond with four faces which is applied to the sample under a predetermined force P, the hardness being proportional to P/d^2 where d is the length of the diagonal of the impression, the microdurometer including means for applying the diamond to the sample, means for linearly displacing a sighting grid between the ends of an impression made in a sample, a first voltage generator coupled to the grid displacing means producing a voltage inversely proportional to the square of the displacement of the grid, a second voltage generator for producing a voltage proportional to the force of application of the diamond and connected to the first voltage generator to produce an analogue product of the two voltages proportional to the hardness of a sample and a voltmeter calibrated in units of hardness to indicate the product.

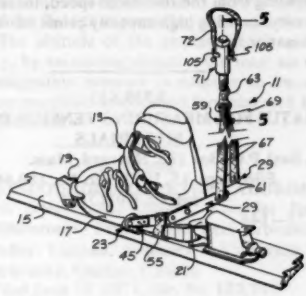
3,739,631

SKI BINDING TESTER ADAPTED FOR TESTING HEEL BINDINGS

Gloria L. Clifford, and Richard P. Clifford, both of 201 Via Orvieto, Newport Beach, Calif.

Filed June 10, 1971, Ser. No. 151,687
Int. Cl. G01l *5/03*
U.S. Cl. 73—133 A **14 Claims**

A ski binding tester for determining the force required to release a ski boot from a ski binding comprising at least one lever mounted for pivotal movement, a force applying member drivingly connected to the lever for applying a force to the ski boot, a flexible tension element connected to the lever for applying a force thereto, and a scale for providing an indication related to the force at which the binding releases.

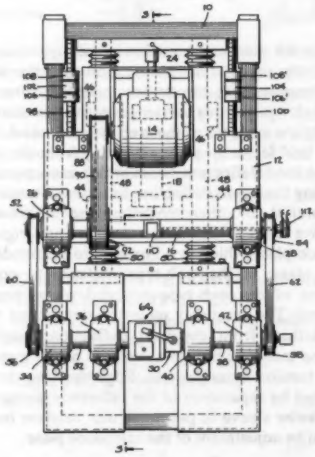


3,739,632

DEVICE FOR TESTING POWER TRANSMISSION COMPONENTS

Henry F. Miller, Clifton, and Robert L. Bredimus, Wayne, both of N.J., assignors to Uniroyal, Inc., New York, N.Y.

Filed Aug. 30, 1971, Ser. No. 175,984
Int. Cl. G01m *13/02*
U.S. Cl. 73—136 A **29 Claims**



An apparatus for testing a plurality of transmission components such as positive transmission belts, V-type transmission belts, gears and the like under static, dynamic and slow rotational conditions. The apparatus comprises two driven shafts arranged end-to-end and driven by a hydraulic actuator to rotate the shafts in respective opposite directions up to a predetermined number of degrees. A drive shaft is arranged parallel to the two shafts and the test transmission components are affixed at the outer ends of the respective shafts and the associated ends of the parallel drive shaft. The drive shaft and the associated drive motor therefor are mounted on a base movable on a fixed frame which carries the two driven shafts. The base is connected to a drive motor in the form of a fluid pressure actuator piston and cylinder combination for shifting the base along the frame in order to preload the transmission components which are to be tested. The hydraulic rotary actuator applies a constant or programmed torque loading to the

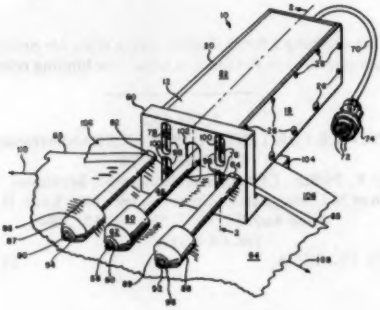
individual transmission components being tested to thereby duplicate actual power transmission conditions. After the torque is applied, the two driven shafts are rotated together. The arrangement permits the complete separation of the torque loading from the rotational speed, thereby eliminating the necessity for using high capacity prime mover-dynamometer combinations.

3,739,633

APPARATUS FOR MEASURING TENSION IN WEB-TYPE MATERIALS

Erwin J. Saxl, P.O. Box 185, Harvard, Mass.

Filed Sept. 15, 1971, Ser. No. 180,660
Int. Cl. G01l 5/04
U.S. Cl. 73—144 **17 Claims**



Device for measuring tension in web-type materials such as tape, cloth, paper, felt, plastic film and the like which are under tension load, the device including three substantially parallel elongated rods carrying rotatively mounted sleeves for engaging the surfaces of the web-type material, the center rod being a load feeler member extending from the deflection portion of a load deflection beam which incorporates means for measuring the beam deflection in terms of tension in the web-type material, the other two rods being reference members on respective sides of the feeler member and rigidly fixed to a reference plate which is adjustable in perpendicular relation to the plane of the web-type material to compensate for thickness of the web-type material whose tension is being measured. The rotatively mounted sleeves are tapered at the ends farthest from the load deflection beam to facilitate edgewise insertion onto the surfaces of the material for making the tension measurement. Edgewise insertion may also be facilitated by separation of the reference sleeves with respect to the feeler sleeve in perpendicular relation to the web-type material by adjustment of the reference plate.

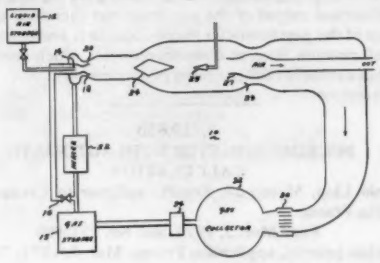
3,739,634

APPARATUS FOR GENERATING ULTRA HIGH TOTAL ENTHALPY GASES WITH MULTICOMPONENT FLOW

Elmer G. Johnson, Fairborn, and Hans P. Von Ohain, Dayton, both of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed July 6, 1972, Ser. No. 269,357
Int. Cl. G01m 9/00
U.S. Cl. 73—147 **9 Claims**

An apparatus for generating ultra high total enthalpy gases, having means for injecting solid or liquid particles into a flow of low molecular weight gas expanding through a high pressure ratio nozzle thereby accelerating the particles to the high speed of the low molecular weight carrier gas. At the exit of the nozzle the particles enter an additional flow of expanding low molecular weight gas of higher stagnation temperature and consequently greater speed. During this acceleration process the particles are separated from the bulk of the low molecular weight carrier gas by inertial effects. Further



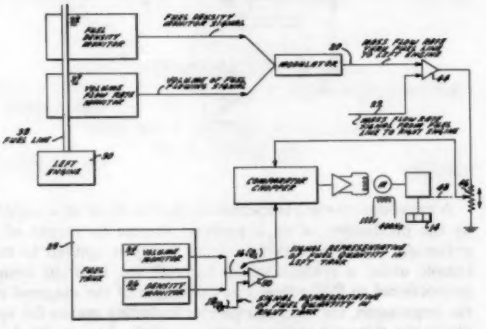
downstream, the kinetic energy of the particles is converted into kinetic energy of an airflow which is ducted into a test section in which re-entry flow conditions are duplicated.

3,739,635

FUEL MANAGEMENT SYSTEM

Douglas E. Stuart, Middlebury, Vt., assignor to Simmonds Precision Products, Inc., Tarrytown, N.Y.

Filed May 12, 1971, Ser. No. 142,525
Int. Cl. G01f 1/02, 9/00
U.S. Cl. 73—194 M **2 Claims**



An aircraft fuel management system providing accurate and comparable measurement and display of on-board fuel quantity, fuel rate and flight time remaining. This system utilizes capacitance method of fuel gaging and fuel mass flow rate derived from both volumetric flow measurement and capacitance density compensation. These separate measurements — fuel gaging and mass flow rate — are combined electronically to obtain "flight time remaining" under prevailing flight conditions.

3,739,636

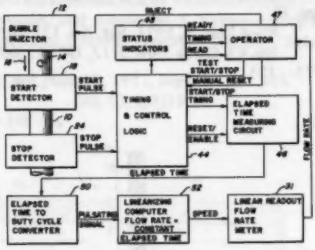
LINEAR READOUT FLOWMETER

Antonio A. Versaci, Schenectady, N.Y., and Paul Zucchino, Princeton, N.J., assignors to said Versaci, by said Zucchino, Schenectady, N.Y.

Filed Jan. 22, 1971, Ser. No. 108,717
Int. Cl. G01f 1/00
U.S. Cl. 73—194 E **20 Claims**

A flow meter for determing the rate of flow of fluid through

a conduit and indicating the flow rate on a linear scale. A signal having a magnitude inversely proportional to the time



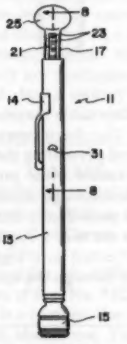
elapsed for a substance carried by the fluid to travel a fixed distance is produced and converted into a flow rate indication.

3,739,637

PNEUMATIC PRESSURE INDICATOR

Greg A. Novak, P. O. Box 511, Oakland, Calif.

Filed Apr. 19, 1971, Ser. No. 135,330
Int. Cl. B60c *23/04*
U.S. Cl. 73—146.3 **2 Claims**



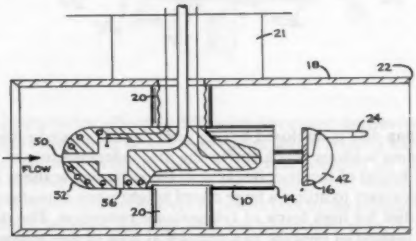
A pneumatic tire pressure gauge or filler device having an adjustable biasing means for setting the air pressure which is contained in a tire. The device includes a whistle aperture whereby when the pressure contained in the tire is above the adjusted pressure, the excess pressure will escape through the aperture and emit a whistling sound.

3,739,638

AIRSPEED AND ALTITUDE MEASURING DEVICE

Douglas F. White, Bedminster, N.J.; Marvin D. Scardron, Glenview, and Joseph C. Faul, Melrose Park, both of Ill., assignors to American Standard Inc., New York, N.Y.

Division of Ser. No. 737,717, June 17, 1968, Pat. No. 3,572,126. This application June 22, 1970, Ser. No. 59,821
Int. Cl. G01c *21/10*
U.S. Cl. 73—181 **1 Claim**



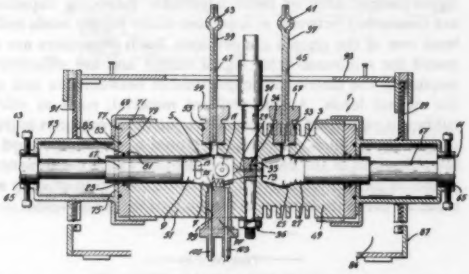
The airspeed of an airplane is determined by means of a device which includes an upstream cylindrical member and a downstream disc-like member spaced from said cylindrical member by a predetermined distance. Oscillations are produced in the air which passes around the cylindrical and disc structures and the frequency of the oscillations are measured. The frequency of the oscillations is directly related to the velocity of the fluid thus providing a direct determination of airspeed. The altitude of the airplane is computed with great accuracy, by measuring directly, the total air temperature and air stagnation pressure in addition to the airspeed, and using these quantities in standard formulas well known to those versed in the art.

3,739,639

SEMICONTINUOUS DILATOMETER/CALORIMETER

Maurice Ruel, Sherbrooke, Quebec, Canada; Jean-Marie Janssens, Billancourt, France, and Real Broussear, Sherbrooke, Quebec, Canada, assignors to Universite De Sherbrooke, Sherbrooke, Quebec, Canada

Filed June 14, 1971, Ser. No. 152,717
Int. Cl. G01k *17/00*
U.S. Cl. 73—190 R **8 Claims**



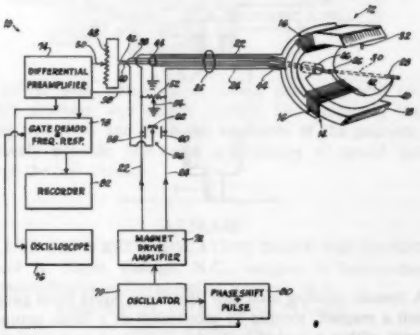
A semi-continuous dilatometer/calorimeter is formed of a mixing chamber and a stock chamber which are interconnected together. The dilatometer/calorimeter has means to introduce into the mixing chamber a portion of the liquid present in the stock chamber, whereby this portion of liquid is caused to be mixed with the liquid present in the mixing chamber. The apparatus comprises means to determined the liquid volume decrease of the stock chamber and the liquid volume increase in the mixing chamber.

3,739,640

ELECTROMAGNETIC FLOWMETERS FOR BLOOD OR OTHER CONDUCTIVE FLUIDS

John D. Folts, Madison, Wis., assignor to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Feb. 8, 1971, Ser. No. 113,542
Int. Cl. G01f *1/00;* **A61b** *5/02*
U.S. Cl. 73—194 EM **22 Claims**



The disclosed flowmeter comprises a probe or transducer utilizing a C-shaped electromagnet which includes an energiz-

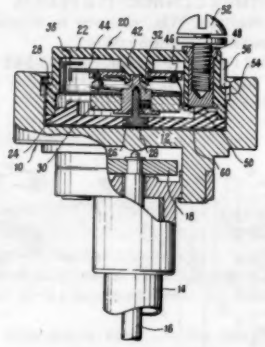
ing coil and is adapted to produce a magnetic field extending across a stream of blood, flowing along a blood vessel, or a stream of some other conductive liquid. The movement of the blood across the magnetic field generates a voltage which is picked up by first and second electrodes. Normally, the coil is energized with an alternating or pulsating current. A first output lead is connected to the first electrode, while second and third output leads are connected to the second electrode. The second and third output leads are on opposite sides of a plane including the electrodes and the first output lead, such plane being parallel to the magnetic field. To minimize transformer-type coupling between the coil and the leads, a potentiometer is connected to the second and third leads. The adjustable tap of the potentiometer and the first output lead are employed as the output connections from the electrodes, the tap being adjusted for minimum error signal output. A grounded electrostatic shield is employed between the coil and the leads. Moreover, a ground electrode is positioned to engage the blood vessel at a neutral point between the first and second electrodes. A second adjustable potentiometer is connected across the supply leads for the coil. The tap of the second potentiometer is grounded and is adjusted for minimum error signal output. One or more adjustable balancing capacitors are connected between at least one of the supply leads and at least one of the output connections. Such capacitors are adjusted for minimum error signal output and are effective to neutralize the distributed capacitances between the coil and the output leads. A soft resilient material, such as silicon rubber, is employed to encapsulate the electromagnet and the output leads. Such material is adapted to be compressed by the pulsations of the blood vessel around which the flowmeter probe or pickup is mounted. Thus, the provision of such soft material prevents damage to the walls of the blood vessel.

3,739,641

REMOTE READING GAUGE INDICATOR UNIT

Leta S. Taylor; Paul B. Johnson, and Eugene D. Huskey, all of Box 529, Garland, Tex.

Filed May 5, 1971, Ser. No. 140,334
Int. Cl. G01f *23/10*
U.S. Cl. 73—313 **7 Claims**



A remote reading indicator unit for a liquid level gauge in which a magnet, rotated by movement of a float, actuates a magnet within a sealed indicator unit, said unit including a variable resistance element to be electrically connected in a circuitry connected to a gauge dial at a remote point.

3,739,642

OPEN END THERMOMETER

Josef F. Klingler, Wilmette, Ill., assignor to Thermex, Inc., Chicago, Ill.

Filed Mar. 5, 1971, Ser. No. 121,269
Int. Cl. G01k *5/08, 5/12*; G01d *3/00*
U.S. Cl. 73—371 **26 Claims**

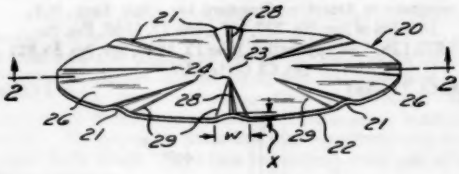
A low cost clinical disposable thermometer formed primarily of molded plastic. The thermometer includes a capillary bore having an open end permitting the indicating liquid to be exposed to ambient pressure while precluding flow of liquid indicator outwardly therethrough under normal ambient conditions. An indicator is provided in association with the thermometer to indicate to the user a condition wherein the thermometer had been subjected to a high temperature causing loss of indicating liquid through the open end of the capillary bore.

3,739,643

BIMETALLIC SNAP DISC OR THE LIKE

Anton J. Gerich, Mansfield, Ohio, assignor to Therm-O-Disc Incorporated, Mansfield, Ohio

Continuation of Ser. No. 859,853, Sept. 22, 1969, abandoned.
This application Dec. 6, 1971, Ser. No. 204,882
Int. Cl. G01k *3/12, 5/70*
U.S. Cl. 73—378.3 **12 Claims**



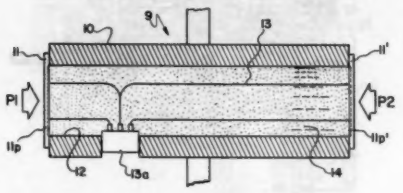
A snap disc is disclosed having peripherally spaced radially extending scallops which stiffen the disc independently of the chord height of the disc. Because of the stiffening scallops it is not necessary to utilize a large chord height when manufacturing a disc for high force or temperature operation. The disc, when formed of bimetal, can operate at high or low temperatures with a narrow temperature differential of operation. Tools for forming the disc with scallops are also disclosed.

3,739,644

LINEARIZATION OF DIFFERENTIAL PRESSURE INTEGRAL SILICON TRANSDUCER

Joe B. Underwood, and Alexander J. Yerman, both of Scotia, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed June 30, 1972, Ser. No. 267,916
Int. Cl. G011 *9/02*
U.S. Cl. 73—398 AR 10 Claims



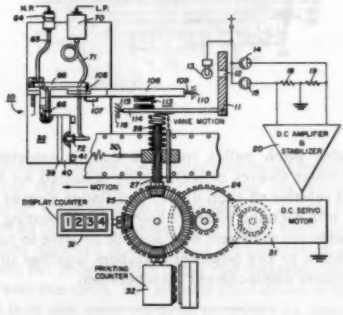
An integral silicon transducer suitable for measuring low differential fluid pressures utilizes a pair of pressure-biased silicon diaphragms coupled by a fill liquid. When sensing a differential pressure, the diaphragms flex to respectively increase and decrease the strain level. By subtracting the individual output signals of the two diaphragms, a more linear transducer output signal is obtained even though the individual diaphragm output signals are nonlinear. A special strain gage pattern is not required, but a unitary fully active bridge is desirable.

3,739,645

DIFFERENTIAL PRESSURE INDICATING APPARATUS

Joseph E. Gorgens, Trumbull; William A. Heske, Fairfield, and Randall Goff, Weston, all of Conn., assignors to Dresser Industries, Inc., Dallas, Tex.

Continuation-in-part of Ser. No. 859,246, Sept. 17, 1969, which is a continuation of Ser. No. 732,472, April 12, 1968, abandoned, which is a continuation-in-part of Ser. No. 565,857, July 18, 1966, abandoned. This application Apr. 22, 1971, Ser. No. 136,457
Int. Cl. G011 *13/02*
U.S. Cl. 73—407 R 9 Claims



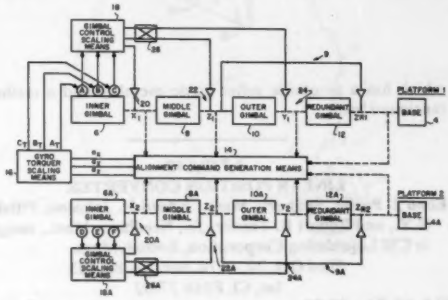
Apparatus for effecting differential pressure sensitivity of a pressure measuring device. A pressure sealed housing having a relatively high pressure inlet connection contains an expansion bellows having a relatively low pressure inlet connection. The bellows' free end moves in proportion to the pressure differential between the high and low pressure supply. A lever connected to the free bellows end to outward of the housing, transmits the bellows output force to an external pressure measuring apparatus.

3,739,646

FAILURE DETECTION AND CONTROL MEANS FOR IMPROVED DRIFT PERFORMANCE OF A GIMBALLED PLATFORM SYSTEM

Bernard J. O'Connor, Eastchester, N.Y., and Frank S. De Carlo, Westwood, N.J., assignors to The Bendix Corporation, Teterboro, N.J.

Filed Feb. 12, 1971, Ser. No. 114,772
Int. Cl. G01c *19/02*
U.S. Cl. 74—5.34 10 Claims



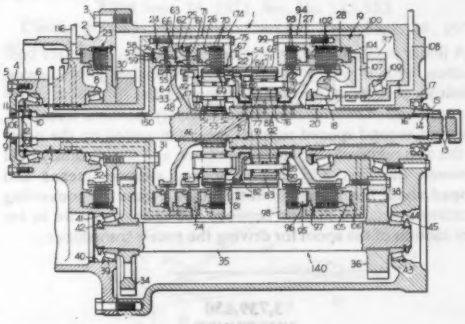
Apparatus for detecting excessive drift of one or more gyros in a gimballed platform system and for controlling the system to maintain desired accuracy by applying torquing signals to the gyros proportional to the angular misalignment of platform inner gimbal references.

3,739,647

PLANETARY TRANSMISSION

James W. Crooks, Milwaukee, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Oct. 12, 1971, Ser. No. 188,261
Int. Cl. F16h *37/00, 37/06, 57/10*
U.S. Cl. 74—15.63 10 Claims



A power shift transmission having planetary and countershaft gearsets, and clutch carriers for selectively transmitting power to and from the elements of the gearsets to selectively provide one of a multiplicity of speed ratios through the transmission.

3,739,648

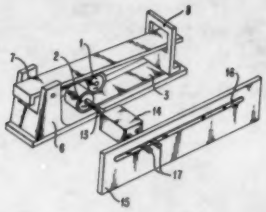
ROLLER BAND RECIPROCATING DRIVE MECHANISM

Michael W. Payst, Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 21, 1971, Ser. No. 145,653
Int. Cl. F16h *27/02*
U.S. Cl. 74—89.2 8 Claims

A drive mechanism for converting small amplitude linear motion of a driving member into large amplitude linear rolling

motion of a driven element is disclosed. The drive mechanism consists of an improved roller band, or "rolamite" device



which has a pivotable roller guide member and a resiliently tensioned band.

3,739,649

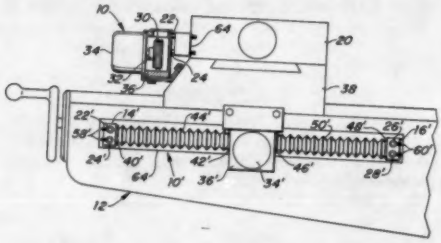
LINEAR POSITION CONVERTER

Elmo J. Pacini, Sudbury, Mass.; Alford H. Johnson, Pittsford, N.Y., and Robert B. Turner, Jr., Needham, Mass., assignors to CSI Liquidating Corporation, Boston, Mass.

Filed Oct. 20, 1970, Ser. No. 82,403

Int. Cl. F16h *27/02*

U.S. Cl. 74—89.22 **2 Claims**



A linear position encoder including a spool adapted for connection with a rotary transducer and having guide means about its periphery, means for mounting the spool and transducer to one of two rectilinearly, relatively movable members, first and second spaced support means mounted on the other of the two relatively movable members; and a wire tautly held between the first and second spaced support means and looped about the spool within the guide means for converting rectilinear relative motion between the spool and wire to rotary motion of the spool for driving the rotary transducer.

3,739,650

UHF TUNER

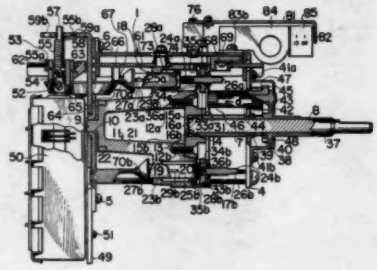
Etsuzo Mohri, Osaka; Hiroshi Saito, Hirakata; Toshio Hayakawa, Kodoma, and Shigeru Ochiai, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 15, 1971, Ser. No. 124,353

Claims priority, application Japan, Apr. 16, 1970, 45/32788; Apr. 16, 1970, 45/32789; Apr. 16, 1970, 45/32790; Apr. 16, 1970, 45/37125; Apr. 16, 1970, 45/37126; Apr. 16, 1970, 45/37127

U.S. Cl. 74—10.6 **4 Claims**

A presettable type UHF tuner to tune in UHF television channels. It comprises a channel switch-over shaft mounted in a tuner chassis, a rotary drum assembly rotatably disposed within the tuner chassis and rotatable with the channel switch-over shaft, a plurality of fine tuning screws carried by the rotary drum assembly and displacable in the direction parallel to the axis of the rotary drum assembly, a slide member slidably mounted in the tuner casing and slidable in the direction of displacement of the fine tuning screws, said slide member being provided with an integral engagement piece adapted to be successively engaged by the fine tuning screws as the rotary drum assembly rotates, and a tuner rotor shaft coupled to the



slide member. By turning the channel switch-over shaft the rotation of the rotary drum assembly with the channel switch-over shaft cause the successive switching of the plurality of fine tuning screws into engagement with the engagement piece on the slide member, thereby achieveing the sliding movement of the slide member to rotate the tuner rotor shaft for the switching-over of the UHF channels.

3,739,651

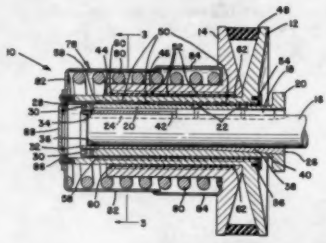
VARIABLE SPEED PULLEY ASSEMBLY

William L. Lewis, Sanford, N.C., assignor to Roberts Company, Sanford, N.C.

Filed May 5, 1971, Ser. No. 140,320

Int. Cl. F16h *55/52*

U.S. Cl. 74—230.17 M **7 Claims**



A variable pitch pulley includes flanges associated with inner and outer sleeves concentrically mounted for axial displacement relative to each other. The flange sleeves are supported by non-metallic inserts which serve as bearing surfaces between adjacent members displaceable relative to each other and also serve to key adjacent members together to prevent angular relative displacement therebetween.

3,739,652

SWING TRANSMISSION FOR EXCAVATORS

Samuel I. Caldwell, Aurora, and Lawrence R. Cline, Oswego, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

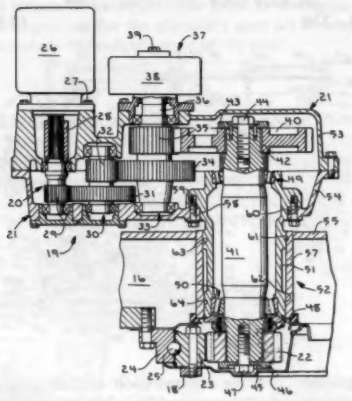
Filed Mar. 23, 1972, Ser. No. 237,377

Int. Cl. F16h *1/20*; B66c *23/84*

U.S. Cl. 74—421 A **29 Claims**

An excavator comprises a revolving upper unit rotatably mounted on a tracked undercarriage. The upper unit has a power transmission removably mounted thereon comprising a speed reduction gear train and an operatively connected car-

tridge assembly which terminates at a swing pinion. The upper unit is revolved on the undercarriage by selectively rotating the swing pinion against a reaction ring gear secured to the undercarriage. The cartridge assembly is removably mounted in the transmission and has axially spaced piloting lands formed thereon to facilitate expeditious and precise installation of the transmission on a support housing.

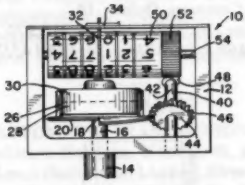


3,739,653

SPEEDOMETER DRIVES

Donald Bogosh, 2646 Willow, Franklin Park, Ill.

Filed July 28, 1971, Ser. No. 166,828
Int. Cl. F16h *1/18, 37/00*
U.S. Cl. 74—424.5 **10 Claims**



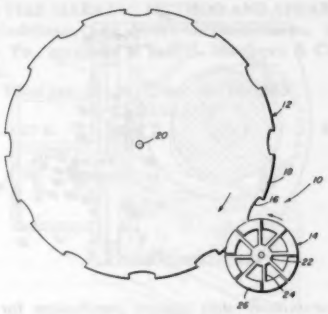
An apparatus disposed in a speedometer-odometer drive assembly for transferring and translating the rotation of a speedometer drive cable to a speedometer needle registering speed and an odometer registering distance, having an annular plate means disposed at one end of a drive shaft in communication with the speedometer cable and rotatable about a central axis with this shaft. The annular plate means is discontinuous at at least one point about its periphery by virtue of a cut or split generally directed toward its center, the facing edges of this cut or split being upset with respect to the radial plane of the surface of the annular plate means. These cut or split edges of the annular plate means act to engage successive threads or teeth on a gear means driving the odometer as the annular plate means rotates. Flanges are cut or formed from the surface of the annular plate means and bent to a position substantially perpendicular to the surface in such a manner that a magnet acting to drive the speedometer may be inserted between the flanges and the wall of a flux cup passed between the end of the magnet and each flange.

3,739,654

INTERMITTENT GEARING ARRANGEMENT

Samuel M. DeToma, Natick, Mass., assignor to Eduj Corporation, Boston, Mass.

Filed Jan. 24, 1972, Ser. No. 220,174
Int. Cl. F16h *27/04, 55/14, 55/04*
U.S. Cl. 74—461 **5 Claims**



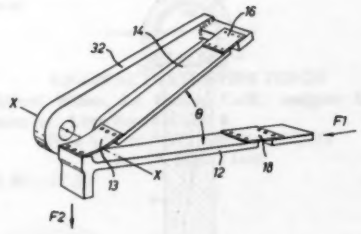
A pair of cooperating gears provides an intermittent indexing action. One rotary gear member is formed with peripheral spaced indents while another rotary gear member, in mesh with the first member, is provided with a plurality of radially extending resilient arms adapted to engage drivingly the indents of the first member during part of a cycle. The arms disengage the indents during another part of a cycle by bending out of the plane of the gear to ride along smooth lands formed between indents on the first gear.

3,739,655

VECTOR FORCE-BALANCING MECHANISMS

Peter Standidge Boden, Harpenden, England, assignor to Kent Instruments Limited, Luton, Bedfordshire, England

Filed Sept. 24, 1971, Ser. No. 183,353
Claims priority, application Great Britain, Sept. 28, 1970, 46,078/70
Int. Cl. G05f *1/00*
U.S. Cl. 74—469 **2 Claims**



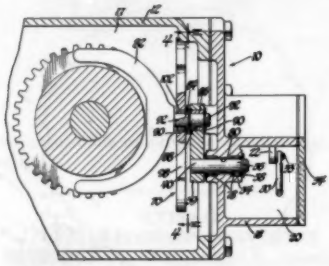
A vector force-balancing mechanism comprising a first rigid member connected to a frame for receiving an input force to be balanced, a second rigid member connected to the first member by a flexure strip for relative pivotal movement, and a third rigid member lockably pivotally mounted on the frame about an axis which is perpendicular to the plane of the relative movement and extends transversely through the flexure strip when the first and second rigid members are relatively angularly positioned so that the flexure strip is unstrained, the third rigid member being pivotally attached to the second member at a position remote from the axis.

3,739,656

SHIFT CONTROL MECHANISM

Richard D. Williams, Fairport, and Fred G. Michaels, Pittsford, both of N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed May 13, 1971, Ser. No. 143,091
Int. Cl. G05g 9/00
U.S. Cl. 74—473 R 3 Claims



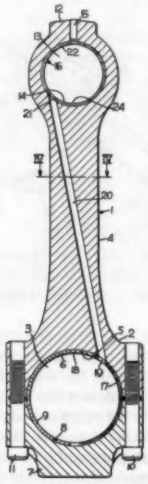
A transmission shift control mechanism for a standard three-speed and four-speed synchromesh transmission including a single cable connected to a shift lever mounted on the exposed end of a single pivotable shaft extending through a wall of the transmission. On the end of the single pivotable shaft within the transmission housing there is mounted a disc-like element having a pair of contoured cam grooves formed therein for receiving the respective extensions of two conventional shift forks. As the disc-like element is pivoted in response to manual movement of the cable, the cam grooves move the shift fork extensions laterally as required to alternately position one of the shift forks in one of the available speed ratio positions and the other in Neutral.

3,739,657

CONNECTING ROD LUBRICATION OIL HOLE

Paul J. Patchen, Chicago, and Jerome L. Berti, Chicago Heights, both of Ill., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Jan. 7, 1972, Ser. No. 216,155
Int. Cl. F16c 7/02
U.S. Cl. 74—587 10 Claims



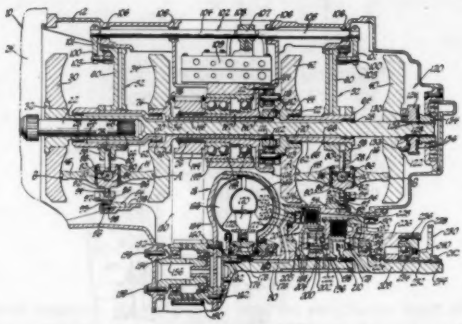
A connecting rod with a diagonal lubrication hole to improve the load carrying capacities of the rod end bearings and improve the fatigue life of the connecting rod.

3,739,658

TRANSMISSION

Milton H. Scheiter, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed June 7, 1971, Ser. No. 150,515
Int. Cl. F16h 47/00, 37/06, 15/08
U.S. Cl. 74—730 15 Claims



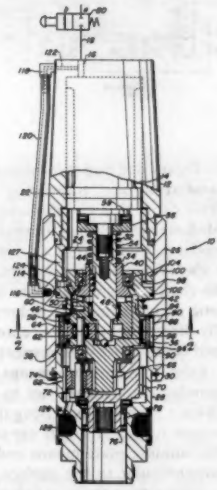
A continuously variable transmission including a prime mover driven-input shaft connected by a first transfer drive to drive two spaced toric transmission units which are connected by a second transfer drive combining the outputs from both units to drive a fluid torque converter driving the output shaft. A chain and sprocket transfer drive is connected intermediate the two toric units in one transmission for transferring the combined output from the two toric units to the fluid torque converter and output shaft on an axis parallel to that of the input shaft and toric units, and in another transmission for transferring the output of the input shaft to the two toric units whose combined output is transferred axially to the fluid torque converter such that the in-line transmission is parallel to the input shaft. Further embodiments provide for dual output shafts which may be operated together or independently of one another.

3,739,659

AUTOMATIC SPEED SHIFT FOR POWER TOOL

William Workman, Jr., Spring Lake, Mich., assignor to Gardner-Denver Company, Quincy, Ill.

Filed Dec. 30, 1971, Ser. No. 213,970
Int. Cl. F16h 3/74; B23q 5/36; F16d 43/20
U.S. Cl. 74—751 9 Claims



A two-speed shift device for a power tool such as a wrench or nutsetter comprising a planetary gear set having a planet

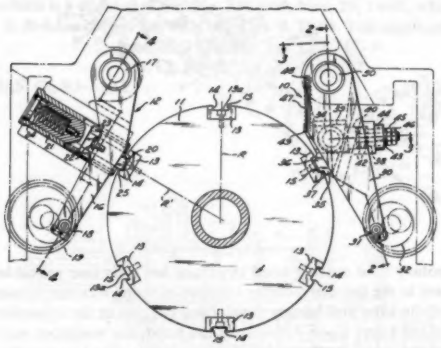
gear carrier connected to the driven member of a torque responsive clutch and a ring gear mounted in a one-way clutch for unidirectional rotation. The driving member of the torque responsive clutch comprises a piston which is axially movable to uncover a pressure fluid port in response to a predetermined torque to cause pressure fluid to disengage the torque clutch to provide for the planetary gear set to become operative to reduce the output speed of the tool.

3,739,660

SPINDLE CARRIER LOCKING AND CLAMPING MECHANISM IN MULTIPLE SPINDLE MACHINE TOOL

Karl P. Schubert, Mayfield Heights, Ohio, assignor to Acme-Cleveland Corporation, Cleveland, Ohio

Filed Sept. 15, 1971, Ser. No. 180,698
Int. Cl. B23b *29/32*
U.S. Cl. 74—815 7 Claims



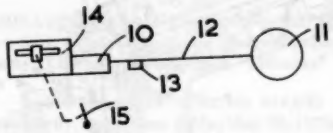
In a a multiple-spindle machine tool, a cam-operated locking pin assembly which, at the end of an indexing rotation of the spindle carrier, turns the spindle carrier a slight additional amount in the same rotational direction against a locating pin assembly and then clamps the spindle carrier in this position. The foregoing abstract is merely a resume of one general application, is not a complete discussion of all principles of operation or applications, and is not to be construed as a limitation on the scope of the claimed subject matter.

3,739,661

AUTOMATIC TRANSMISSION SYSTEM

David Blackburn Harrison, Kenilworth, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Mar. 1, 1972, Ser. No. 230,841
Claims priority, application Great Britain, Mar. 5, 1971, 6,208/71
Int. Cl. B60k *21/00*; F16h *3/74*
U.S. Cl. 74—866 5 Claims



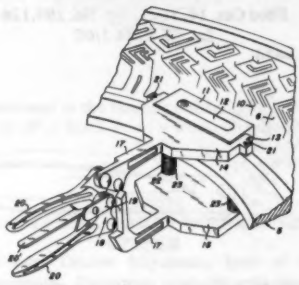
A circuit for controlling an automatic transmission system for an engine includes a resistor for supplying a third signal to the input of a summing amplifier, means for supplying a second signal representative of the speed of the vehicle, to the input of the summing amplifier and a transistor for supplying a first signal to the input of the summing amplifier only when the throttle setting of the vehicle exceeds a predetermined value. The arrangement being such that when the second signal exceeds the third signal or the third and first signals together, the circuit will operate to effect a ratio change to reduce the engine speed for a given road speed and vice versa.

3,739,662

RETREAD TIRE MARKING METHOD AND APPARATUS

Earl A. Windelman, and Paul A. Fitzsimmons, both of Glenshaw, Pa., assignors to Jas. H. Matthews & Co., Pittsburgh, Pa.

Filed Jan. 15, 1971, Ser. No. 106,653
Int. Cl. B21k *5/20*
U.S. Cl. 76—107 R 8 Claims



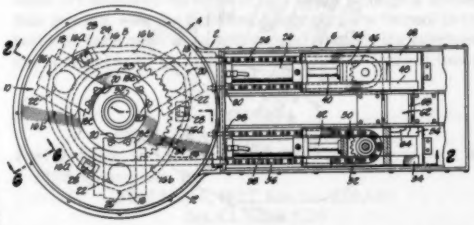
A method and apparatus for application of interchangeable markings on existing tire retreading molds is disclosed wherein a slotted guide member is first clamped to a mold and a milling cutter in a hand held motor driven tool is first run back and forth in the slot to cut a flat surface in the mold. A jig which has a snug fit in the slot is placed in the slot and spaced holes are drilled to a slight depth in the mold. The guide member and jig are then removed, internally threaded plugs are driven into the holes that have been so drilled and a screw is entered into each plug. A metal tag which has previously been embossed with the required information has slotted ends that may be inserted under the heads of these screws is put in place on the flat surface and the screws are tightened down. When the mold is used the indicia on the tag is molded into the retread rubber. To replace a tag, the screws are partly unscrewed, the old tag removed, and the replacement is slipped into place.

3,739,663

CHAIN ACTUATED PIPE TONGS

Carl Alfred Wilms, La Habra, Calif., assignor to Byron Jackson Inc., Long Beach, Calif.

Filed Apr. 16, 1971, Ser. No. 134,553
Int. Cl. B25b *13/46*
U.S. Cl. 81—57.39 6 Claims



A chain actuated well pipe tong having a body adapted to receive pipe and pipe gripping means mounted with the body,

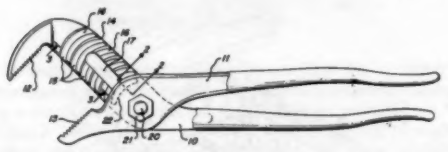
the pipe gripping means having jaws adapted to positively converge into gripping engagement with pipe and to retract away from such pipe in response to relative rotation of the pipe gripping means with respect to the body. The improvement comprises chain sprocket means connected to rotate the pipe gripping means with respect to the body, chain means connected with the sprocket means, and linearly extending actuator means connected with the chain means and the body for pulling the chain means to rotate the sprocket means and actuate the pipe gripping means.

3,739,664

TOOLS AND MACHINE PARTS AND METHODS FROM INVERSE DRAFT FORGING

John E. Swanstrom, Jr., 217 S. 36th Avenue East, Duluth, Minn.

Filed Oct. 14, 1971, Ser. No. 189,126
Int. Cl. B21k *5/00*
U.S. Cl. 81—414 **10 Claims**



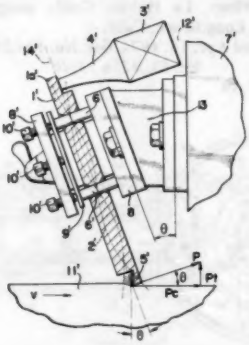
The disclosure is directed to the use of forging tools and machine parts by employing a method and structure in the form of a negative draft angle and larger positive draft angle to form tongue or groove elements in the tools and machine parts as forged from the dies. Employment of the negative draft angle with a greater positive draft angle permits tools and machine parts to be formed so that the metal being worked is formed with a continuous uncut and uninterrupted grain flow extending longitudinally of the working member being formed. A negative draft angle of substantially 5 degrees when used with a positive draft of substantially more than 5 degrees has been found to produce excellent results.

3,739,665

VIBRATING CUTTING METHOD AND APPARATUS

Junichiro Kumabe, Tokyo; Koichiro Kitamura, Tokaoka, and Osamu Taniguchi, Tokyo, all of Japan, assignors to Rikagaku Kinkyusho, Saitama-ken, Japan

Filed Apr. 5, 1971, Ser. No. 131,357
Claims priority, application Japan, Apr. 8, 1970, 45/29997
Int. Cl. B23b *1/00, 29/00;* **B26d** *1/00*
U.S. Cl. 82—DIG. 9 **2 Claims**



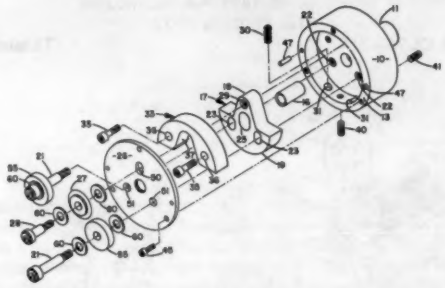
This invention is to provide novel vibrating cutting method and apparatus in which vibrating tool holder in vibrating cutting machine tools is inclined at an angle to the direction of cutting so that the direction of a resultant force of cutting resistance force is at substantially right angle to the center axis of vibration of the bending vibration tool holder.

3,739,666

TUBE CUTTING HEAD STRUCTURE

William Wright, East Syracuse, and Myron Mathewson, Syracuse, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Jan. 17, 1972, Ser. No. 218,074
Int. Cl. B23b *5/14*
U.S. Cl. 82—59 **8 Claims**



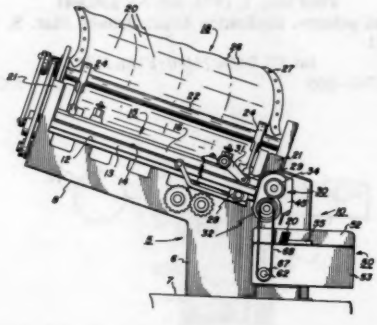
A rotary tube cutting head structure has only one movable element in the form of a cutter support carrying a cutter at one side of the tube and having a weighted portion at the opposite side of the tube. Upon rotation of the head, the weighted portion of the support effects movement of the cutter by centrifugal force transversely of the tube to sever the same. Means is provided to yieldingly oppose movement of the cutter support by centrifugal force. There is stop means to limit movement of the cutter toward the tube and also in a direction from the tube. A counterweight is provided to reduce vibration of the head at high speed rotation thereof.

3,739,667

LABEL STACKING APPARATUS

Richard J. Ernst, Palatine, Ill., assignor to Xerox Corporation, Stamford, Conn.

Filed Mar. 19, 1971, Ser. No. 125,984
Int. Cl. B26d *9/00;* **B65h** *35/08*
U.S. Cl. 83—92 **2 Claims**



A label stacking apparatus including a tray for stacking individual labels in succession on edge and in a generally upright position. Label feeder means supply the labels in succession to

the stacking tray, there being guide means opposite the feeder means outlet to guide the labels to the stacking tray inlet. In entering the stacking tray, the bottom portion of the labels tends to offer greater resistance to movement into the tray with the result that succeeding labels tend to become more and more canted. To obviate this, cyclically operated cam means are provided to push against the lower portion of the labels as each label enters the stacking tray to thereby force the label lower portion into the tray and assure proper stacking of the labels in the tray.

3,739,668

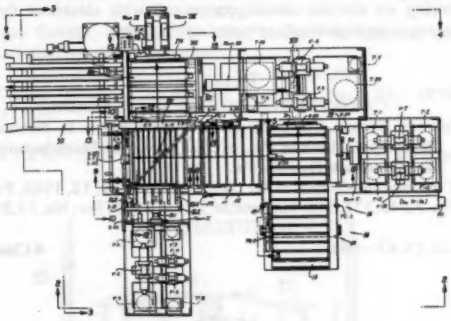
APPARATUS FOR CUTTING AND HANDLING BLOCK-LINE ARTICLES

Alfred E. Comstock, Frontenac, Minn., and Burdsal Gardner Wilcox, Oakland, Calif., assignors to Safeway Stores Incorporated, Oakland, Calif.

Continuation of Ser. No. 36,718, May 13, 1970, abandoned, which is a division of Ser. No. 780,009, Nov. 29, 1968, which is a division of Ser. No. 402,746, Oct. 9, 1964. This application June 28, 1971, Ser. No. 157,747

Int. Cl. B26d *3/24, 7/06, 7/18*

U.S. Cl. 83—102 **10 Claims**



Apparatus for cutting articles by measuring one dimension of the article and cutting the article into a plurality of separate parts, each of which has a dimension which is proportional to the dimension measured.

Apparatus for cutting and handling articles having a platform with means for advancing the articles onto the platform. Dies engage the article on the platform to cut parts of predetermined shapes from the article. Means is provided for ejecting the articles from the dies and then for rotating the articles for cutting additional parts from the article.

3,739,669

SHEARING PRESS OF OPPOSING DIE TYPE

Yasuharu Seki, Hamamatsu, Japan, assignor to Suzuki Motor Company Limited, Hamana-gun, Shizuoka Prefecture, Japan

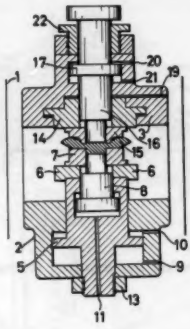
Filed May 17, 1971, Ser. No. 144,082

Claims priority, application Japan, May 29, 1970, 45/46464

Int. Cl. B26d *5/42;* **B26f** *1/14*

U.S. Cl. 83—123 **1 Claim**

A press of the opposite die type has a hydraulically actuated main piston in a pressure cylinder operably mounted in a supporting press table. A main bolster carries the lower die and is mounted on the piston. A hydraulically actuated ejector is inserted coaxially in the main piston. A floating bolster carries the upper die that has an annular cutting protrusion opposite to the lower die and that reciprocates through a short stroke movement. A hydraulically actuated break-out punch that is



coaxially positioned in the floating bolster cooperates with the ejector to cut off a blank from a workpiece held by the die members.

3,739,670

AUTOMATIC FEEDING, POWER-OPERATED ENVELOPE OPENER

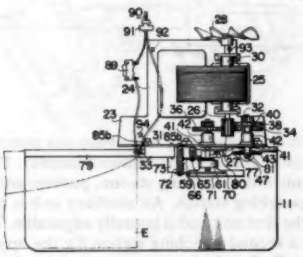
Saichi Amakawa; Osamu Miyamoto, both of Moriguchi; Akito Kawamoto, Neyagawa, and Hiroshi Kawai, Moriguchi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 16, 1970, Ser. No. 89,554

Claims priority, application Japan, June 1, 1970, 45/47366

Int. Cl. B26d *5/26;* **B23d** *19/04*

U.S. Cl. 83—210 **14 Claims**



An automatic feeding, power-operated envelope opener which is operative in such a manner that, when a switch actuating lever is operated by an envelope travelling on an envelope mounting table, an on-off switch of the opener is actuated to set an electric motor in motion and two rotary cutter elements whose shafts are slightly inclined relative to each other are driven by the drive of said motor through a transmission gearing, with the peripheral edge portions thereof in contact with each other at an acute angle, whereby the envelope is cut at one edge by the coaction of said rotary cutter elements.

3,739,671

INTERLEAVING PAPER FEEDER

Earl G. Keith, and Clarence E. Keith, both of Route No. 1, Box 1295, Quarryville, Pa.

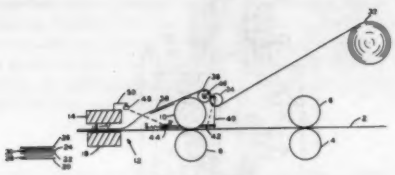
Filed May 5, 1972, Ser. No. 250,647

Int. Cl. B26d *5/20*

U.S. Cl. 83—230 **3 Claims**

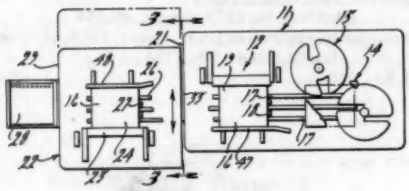
A plurality of pieces of painted metal are cut from a roll of material. Pieces of paper are placed between the individual cut pieces of metal to prevent them from scratching the sur-

faces of each other. The paper feeder automatically feeds paper during every other feeding cycle of the metal to a cutter



to automatically provide the required amount of paper spacing material.

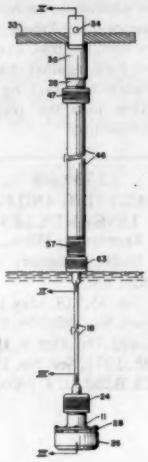
3,739,672
PAPER PUNCHING MACHINE
Ernst Pfaffle, Neuffen, Germany, assignor to Hans Sickinger Company, Pontiac, Mich.
Filed Apr. 25, 1972, Ser. No. 247,411
Int. Cl. B26f 1/02
U.S. Cl. 83—256 **7 Claims**



A machine for performing more than one punching operation on groups of sheets in a continuous manner. The machine has a first unit with a stacking station, pushers and conveyors and a first punching station. An auxiliary unit is mounted on one end of the first unit and is laterally adjustable. This second unit carries a second punching station for the opposite edges of the sheets. Both units have a common drive. In a modification, the second unit is fixed with respect to the first, but feeds the sheets at right angles to the first direction of movement to a second punching station thereon. A third unit is mounted on the exit end of the second unit and is laterally adjustable, carrying a third punching station for a third edge of the sheets.

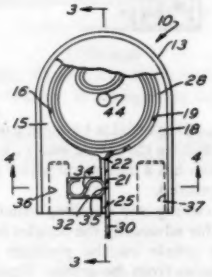
3,739,673
WATER PRESSURE ACTUATED ELECTRIC SWITCH FOR CABLE CUTTER
Ernest E. Temple, Murrysville, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa.
Filed Jan. 12, 1972, Ser. No. 217,116
Int. Cl. B26d 5/12
U.S. Cl. 83—639 **5 Claims**

A sealed hollow capsule having inner and outer ends and a side wall contains a pair of electric contacts spaced lengthwise of the capsule, the outer end of which supports one of the contacts. The side wall has an annular groove in it reducing the thickness at that point to a thin band that is compressible to reduce its width when a predetermined pressure is exerted against the outer end of the capsule so that one contact will



engage the other contact. The switch is especially suitable for closing an electric circuit connected with electrical firing means in an explosively actuated cable cutter.

3,739,674
CASSETTE FOR COILED KNIFE BLADE
Edward Zychal, Cornwells Heights, and Barry L. Neuhard, Philadelphia, both of Pa., assignors to Zyco Manufacturing, Inc., Cornwells Heights, Pa.
Continuation-in-part of Ser. No. 774,720, Nov. 12, 1968, Pat. No. 3,545,322. This application July 9, 1970, Ser. No. 53,353
Int. Cl. B63d 61/18
U.S. Cl. 83—651 **4 Claims**

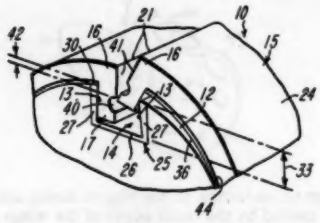


A cassette for housing a coiled elongated flexible electrically conductive knife blade which is withdrawn therefrom through an opening at one end. A resilient spring is biased against the knife blade to complete a circuit through the knife blade so that the cassette can be installed in a circuit that will indicate when the knife blade is exhausted.

3,739,675
ROTARY ANVIL CONSTRUCTION
John C. Duckett; Rufus Neal Ensley, both of Clyde; Leland E. Williams, and Arthur D. Logan, both of Waynesville, all of N.C., assignors to Dayco Corporation, Dayton, Ohio
Filed Feb. 7, 1972, Ser. No. 223,903
Int. Cl. B26d 7/20
U.S. Cl. 83—659 **17 Claims**

A rotary anvil construction is provided which comprises a cylindrical anvil and a die-cutting mat attached in position

thereagainst with the mat being made of a compressible resilient elastomeric material and having opposite end portions provided with a pair of identical locking flanges which extend within a groove in the anvil wherein the groove is comprised of a pair of spaced holding surfaces. A wedge is pro-



vided between the flanges and serves to urge the flanges tightly against the holding surfaces and thereby tighten and lock the mat against the anvil while simultaneously moving associated outer edges of the mat firmly against each other to provide a single line contact therebetween.

3,739,676

MEANS FOR FASTENING CUTTING DIES ON A BASE PLATE

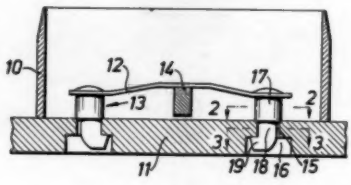
Yngve Gerdin, Mjallom, Sweden, assignor to Sandvik Aktiebolag, Sandviken, Sweden

Filed Dec. 10, 1971, Ser. No. 206,801

Claims priority, application Sweden, Dec. 14, 1970, 16877/70

Int. Cl. B26f *1/14*

U.S. Cl. 83—698 **2 Claims**



A die is secured to a base plate by a resilient yoke which has hooks engaging recesses in the base plate. This mode of fastening permits the die to yield somewhat in the lateral direction and hence promotes automatic adjustment of adjacent knives.

3,739,677

SLICING MACHINE

Ernst Muller, and Albrecht Maurer, both of Balingen, Germany, assignors to Bizerba-Werke Wilhelm Kraut KG, Balingen/Wurttemberg, Germany

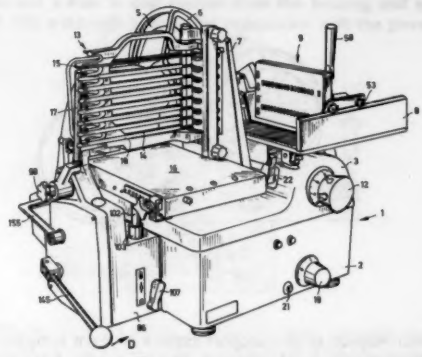
Filed Dec. 7, 1970, Ser. No. 95,552

Claims priority, application Germany, Dec. 5, 1969, P 19 61 069.6

Int. Cl. B26d *1/28*

U.S. Cl. 146—102 B **6 Claims**

A slicing machine which can produce slices of varying thicknesses has a rotating circular blade mounted on a machine housing. Carriage means are mounted on the machine housing for holding a material to be sliced adjacent the blade and for reciprocating movement in a direction parallel to the plane of the blade. A stacking table is mounted so as to be vertically displaceable in the downward direction during each movement of the carriage by a distance corresponding to the desired thickness of the slice. The slices are then stacked onto the stacking table by a conveying device and a kicker.



The slices can either be stacked vertically on the stacking table or in a shingle-like fashion. In the latter case, the stacking tables moves horizontally instead of vertically.

3,739,678

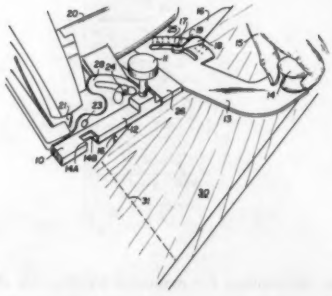
POWER SAW GUIDE ATTACHMENT

Arvo M. Kankaanpaa, Elmont, N.Y., assignor to Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Feb. 29, 1972, Ser. No. 230,328

Int. Cl. B27b *9/04*

U.S. Cl. 83—745 **3 Claims**



A guide for a portable power saw, attachable to such a saw, which enables the operator to make straight cuts with said power saw at a uniform angle to the sides of the work being sawed. A fixed bearing member of the guide is attached to the portable power saw, with a slidable mating member fitting into said bearing member, said slidable mating member being equipped with a rotatable end stop for alignment with the work being sawed. The rotatable end stop may be locked in place by means of a screw fastener, and the angle of said stop member to the plane of the saw cut is displayed on a protractor scale fixed to the sliding member.

3,739,679

CHAMFERING SAW

Francis R. Schwend, Thousand Oaks, Calif., assignor to Northrop Corporation, Los Angeles, Calif.

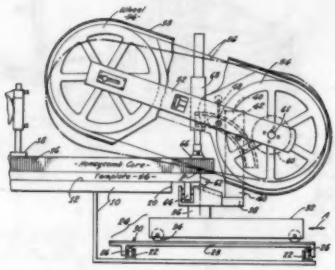
Filed Oct. 4, 1971, Ser. No. 185,937

Int. Cl. B23d *53/08*; **B27b** *13/04*

U.S. Cl. 83—789 **4 Claims**

A profile chamfering saw facility usable in chamfering the edges of honeycomb filler material for sandwich structures,

reinforced panels and the like. The facility includes an elongated work support surface and provides means for mounting an inclined band saw for laterial and longitudinal movement



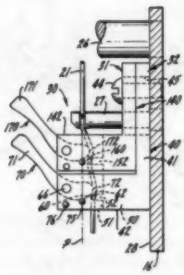
with respect to the support surface along a template edge directing the band saw with respect to the filler material enabling its edges to be chamfered. Chamfer angle is adjustable by tilting the band saw in a vertical plane.

3,739,680

HARP CONSTRUCTION

Henning Christiansen, Oak Lawn, Ill., assignor to Lyon & Healy, Inc., Chicago, Ill.

Filed Aug. 24, 1971, Ser. No. 174,393
Int. Cl. G10d 1/04
U.S. Cl. 84—266 **10 Claims**



A lever mechanism for manually fretting the strings of a harp from a flat to either a natural or a sharp note. A pair of fret blocks are fastened to the neck of the harp for longitudinal adjustment relative to each harp string. Each block includes a fret bar extending transversely of the string, beneath it, and having a generally Vee-shaped fret formed therein. A lever is mounted on the block over the string and in position to have a cam surface brought to bear, upon manual pivoting of the lever, against the string to force it into seated relationship in the fret. The cam surface has a decreasing radius of curvature as it contacts the strings so that initial travel of the lever results in relatively little displacement of the string whereby the final travel of the lever results in a substantial displacement of the string into engagement with the fret.

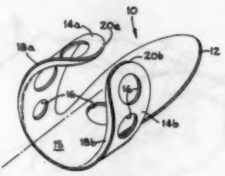
3,739,681

FINGER PICK FOR STRINGED MUSICAL INSTRUMENTS

James Dunlop, 126 Dartmouth Place, Benicia, Calif.

Filed Nov. 17, 1972, Ser. No. 307,484
Int. Cl. G01d
U.S. Cl. 84—322 **3 Claims**

A finger pick comprising the conventional string-actuating part of sheet material and tapering conformation; and extending in opposite directions from the base of said tapering part means for securing the pick to the player's finger tips in the form of annular wings. Segments of the outer edges of said wings, i.e., the edges opposite the side where the string-actuating part is located, are flared outwardly with respect to the center line of the annulus defined by said wings to reduce



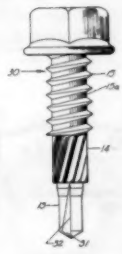
discomfort to, and tiring of, the fingers during use of the pick formerly caused by the outer edges of the wings cutting into the back of the player's fingers in reaction to the force applied to the strings of the instrument through the string-actuating part of the pick.

3,739,682

SELF DRILLING, REAMING AND TAPPING SCREW

George Siebol, Orange, and Robert F. Kolec, Wittier, both of Calif., assignors to Olympic Fastening Systems, Inc., Downey, Calif.

Continuation-in-part of Ser. No. 815,825, April 14, 1969, Pat. No. 3,578,768. This application Feb. 25, 1971, Ser. No. 118,693
Int. Cl. F16b 25/00
U.S. Cl. 85—41 **1 Claim**



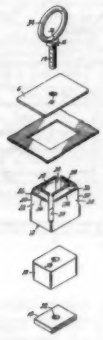
A fastener comprising a screw having a head adapted to be engaged by means whereby it may be rotated so as to force it into a workpiece or the like at one end and a workpiece engaging point at the other end. This fastener is designed to have the maximum tensile strength in the total fastener. To this end the shank of the screw, between the point and head, is formed into three sections. The first section, moving from the point towards the head, is of relatively small diameter and is provided with a pair of cutting edges having flutes extending therefrom whereby this section functions as a pilot drill. The next or intermediate section is of larger diameter. The aforementioned grooves or flutes may extend into this section and define a second pair of cutting edges. This intermediate section is provided with its own cutting edges and flutes whereby this intermediate section constitutes a reaming section having multiple cutting edges with flutes extending therefrom. These drilling and reaming sections are designed to give a positive round hole of the proper diameter so that the threaded section can engage the sides of the hole and distort the sheet metal enough so that a firm fastening is accomplished. The third section, therefore, that immediately adjacent the head, is provided with self tapping screw threads of substantially constant diameter and uninterrupted by any grooves, flutes or the like.

3,739,683

EXPANSION FASTENING DEVICE

Jerald W. Bishop, 1506 Highway 56, Dodge City, Kans.

Filed Jan. 27, 1972, Ser. No. 221,302
Int. Cl. F16b *13/06*
U.S. Cl. 85—70 **4 Claims**



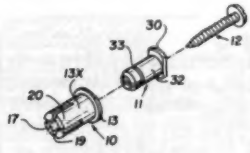
An expansion fastening device for fastening objects to a sheet metal wall consisting of a screw adapted to be inserted through a hole formed in the wall, a cover plate larger than the hole and disposed at one side of the wall, the screw being rotatably mounted in the cover plate, a tubular resilient metal cage normally proportioned to be inserted axially through the hole, but being transversely expandable to a size too large to pass through the hole, a rubber block confined in the cage, and a draw bar engaging the surface of said block opposite said cover plate, the screw extending through the block and being threaded in the draw bar.

3,739,684

EXPANSION HANGER DEVICE

John A. Vitkevich, 57 Griduy St., West Islip, N.Y.

Filed Nov. 12, 1971, Ser. No. 198,371
Int. Cl. F16b *13/06*
U.S. Cl. 85—73 **1 Claim**



This invention relates to a device for hanging frames or fixtures to a dry wall of a building. More particularly the device comprises a body portion which is inserted into a suitable aperture of a relatively thin, dry wall and expanded there behind, by an insertion of a unique plug portion. Lastly, a conventional screw or other suitable hanger element is inserted into said plug portion for holding a fixture thereto.

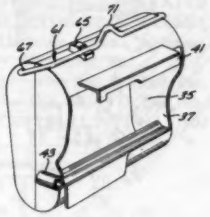
3,739,685

CARTRIDGE CATCHER

Ken C. Lundgren, 6837 Huntdale St., Long Beach, Calif.

Filed Oct. 22, 1969, Ser. No. 868,522
Int. Cl. F41d *11/00*
U.S. Cl. 89—33 F **2 Claims**

A cartridge catcher for use with a gun having a receiver formed with a side opening cartridge ejector outlet and including a pivot pin-receiving bore. The catcher includes a lobe-shaped housing formed with a storage receptacle having an inlet registered with said ejector outlet. A mounting flange is carried from the housing for clipping over the top of the receiver and a boss is also carried from the housing and is formed with a through passage for registration with the pivot



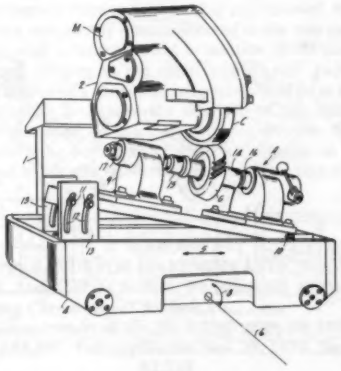
pin-receiving bore to receive a mounting stud whereby the pivot pin may be removed from the receiver and the mounting flange clipped over the top of the receiver and the mounting stud inserted through the passage and into the bore for mounting such catcher on the gun without modification thereof.

3,739,686

METHOD AND MACHINE FOR SHAVING A CONICAL GEAR

Louis G. Marano, Racine, Wis., assignor to Twin Disc, Incorporated, Racine, Wis.

Filed Feb. 2, 1972, Ser. No. 222,922
Int. Cl. B23f *19/06*
U.S. Cl. 90—1.6 **7 Claims**



A method of and machine for shaving a conical gear, such as for example, a conical spur gear or a conical helical gear, and using only a standard cylindrical shaving cutter. The invention includes arranging the axis of the conical gear at an angle to the axis of the cylindrical shaving cutter so that the pitch line of the gear adjacent the cutter is generally parallel to the pitch line of the cylindrical cutter during the shaving operation.

3,739,687

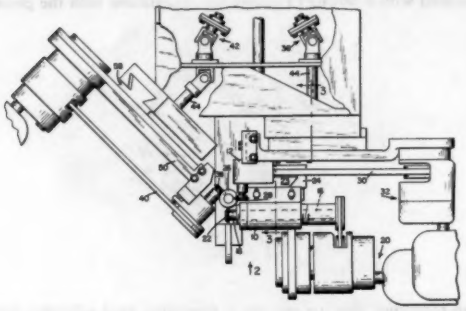
MACHINE FORMING TEETH AT BOTH FACES AND THE PERIPHERY OF A ROTARY BLANK

Evangelos Bougiouris, Worcester, Mass., assignor to John Sagarian, Auburn, Mass.

Filed Jan. 28, 1972, Ser. No. 221,547
Int. Cl. B23c *3/36*
U.S. Cl. 90—15.1 R **15 Claims**

An automatic machine for forming cutting teeth in a rotary blank, said machine including three separately operated ro-

tary cutters, and means for driving and reciprocating them in timed relation, two of the cutters operating on the blank at opposite side faces thereof, said side faces being convergeant,



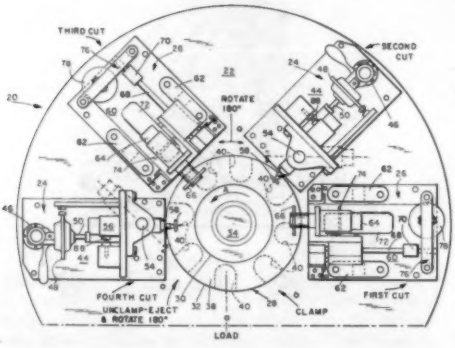
and the third cutter operating on the peripheral edge of the blank; together with indexing means for the rotary blank after the completion of each of the three part teeth.

3,739,688

MILLING MACHINE HAVING A PLURALITY OF MILLING STATIONS

Walter Bell, Monroe, and William A. Eager, Cornwell, both of N.Y., assignors to Star Expansion Industries Corporation, Mountainville, N.Y.

Filed Sept. 3, 1971, Ser. No. 177,662
Int. Cl. B23c *9/00*
U.S. Cl. 90—21 R **13 Claims**



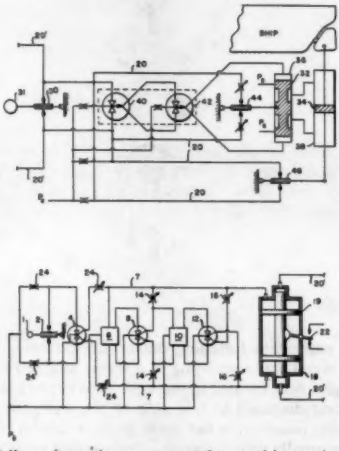
A milling machine for forming drilling extremities on screw blanks. The milling machine comprises a plurality of article-milling stations, each of which is provided with milling-cutters respectively which are pivotally displaceable relative to each of the stations. A feeding assembly is utilized for continuously feeding articles in dwell-free relation successively to each of the milling stations and is controlled by a motor unit so as to feed the articles to and away from the article-milling stations respectively in dwell-free relation at a rapid accelerating withdrawal rate away from each of the article-milling stations and a rapid decelerating approach rate toward each of the article-milling stations. The milling-cutters are pivoted into a cutting position respectively and remain in the position as the article-feeding unit feeds screw blanks slowly into contact with each of the cutters at a rate suitable for material removal. The cutters are then pivotally displaced away from the cutting positions and the screw blanks are rapidly displaced away from the cutting station to again be acted upon at a second milling station, wherein the rate of feed will again be reduced but never stopped.

3,739,689

FLUIDIC FAILURE DETECTION SYSTEM

David L. Craven, Annapolis, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 23, 1970, Ser. No. 91,732
Int. Cl. F15b *13/16, 13/042*
U.S. Cl. 91—3 **2 Claims**



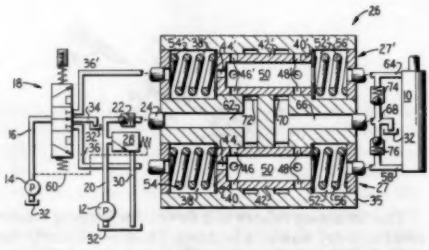
A fluidic failure detection system to be used in conjunction with the fluidic steering and diving control system. The detection system is a fluidic analog of the steering control system and duplicates what the control system is to do and then compares its output with that of the control system.

3,739,690

PILOT OPERATED CONTROL VALVE

John R. Cryder, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed July 19, 1971, Ser. No. 163,866
Int. Cl. F15b *11/08, 13/042*
U.S. Cl. 91—28 **2 Claims**



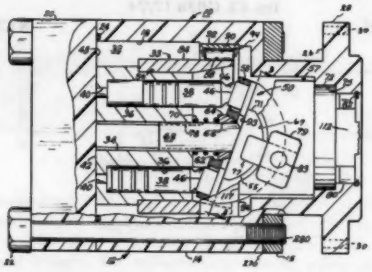
An implement hydraulic circuit including a pilot operated flow amplifier directional valve for controlling communication between a source of primary actuating fluid and a hydraulic motor. A pair of valve spools in the valve provide separate regulated flow paths for an inlet passage and an outlet passage respectively with a pair of work ports. An actuating chamber is associated with one end of each of the spools and may each be selectively communicated with a separate source of pilot fluid for actuation of either of the spools to communicate the primary source with either side of the motor. The other spool is positioned by fluid displaced from the motor to communicate the displaced fluid to the outlet passage for return to a reservoir. The configuration of the spools and their arrangement in the valve provide a capability of metering flow from motor to reservoir to prevent overrunning of the motor.

3,739,691

FLUID DEVICE

Wilfred S. Bobier, 4518 Brightmore, Bloomfield Hills, Mich.

Filed Aug. 3, 1970, Ser. No. 60,333
Int. Cl. F01b 13/04
U.S. Cl. 91—506 23 Claims



A fluid device of the axial piston type having high and low pressure operating passages, one of which may be an inlet and the other an outlet depending upon the pumping or motoring function of the device. The fluid device which may be of the fixed or variable displacement type has a rotatable cylinder barrel with each end of a plurality of pistons disposed for reciprocation within cylinder bores in the cylinder barrel, and cylinder ports successively communicating each of the cylinder bores with arcuate inlet and outlet passages formed in a valving face disposed at one end of the cylinder barrel. The other ends of the pistons are drivingly engaged by an inclined thrust plate assembly disposed to impart a reciprocal stroking movement to the pistons within the cylinder bores as the cylinder barrel is rotated. In one example of the invention, the thrust plate assembly, the cylinder barrel and other rotating components of the fluid device are constructed of a sintered material enclosed in a plastic housing which is preloaded by a predetermined amount that is a function of the expansion forces exerted on the housing by the fluid pressure acting against the pistons within the cylinder bores.

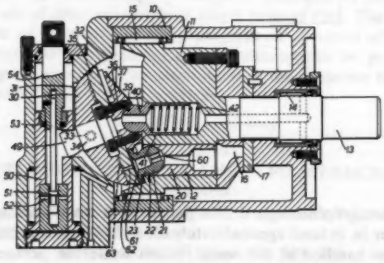
In a second example of the invention, a variable displacement fluid device is disclosed as having several means for varying the inclination of the thrust plate assembly with respect to the longitudinal axis of the shaft on which the rotating cylinder barrel is carried.

3,739,692

SWASHPLATE AND LIKE HYDRAULIC MACHINES

George V. Bell, Ponteland, Northumberland, England, assignor to Reyrolle Hydraulics Limited, Hebburn, England

Filed Sept. 6, 1968, Ser. No. 757,985
Int. Cl. F01b 13/04
U.S. Cl. 91—506 3 Claims



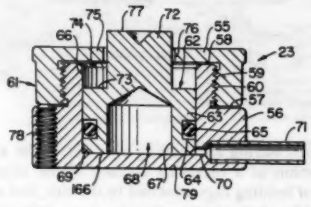
In a swashplate hydraulic machine each piston is connected by a ball joint to a slipper pad, and actuated by a swashplate assembly comprising a rotary slipper retaining plate rigidly connected to a rotary running plate between which the slipper pads are trapped and can slide, and which are backed up by and mounted to rotate in contact with a stationary cam plate.

3,739,693

PNEUMATIC POSITIONING APPARATUS AND PARTS THEREFOR OR THE LIKE

Louis M. Puster, Knoxville, Tenn., assignor to Robertshaw Controls Company, Richmond, Va.

Division of Ser. No. 865,079, Oct. 9, 1969, Pat. No. 3,633,465.
This application Oct. 22, 1971, Ser. No. 191,614
Int. Cl. F15b 15/24; F16j 11/02
U.S. Cl. 92—13 7 Claims



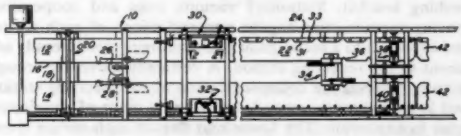
A plurality of separate pneumatically operated actuators disposed in aligned and abutting relation to provide a linear positioning unit having opposed ends with each actuator being individually operable to linearly extend itself when actuated and thereafter to linearly collapse itself when deactuated whereby one end of the unit will be correspondingly linearly extended relative to the other end thereof and thereafter be linearly collapsed relative to the other end thereof. A control device being operatively interconnected to the one end of the positioning unit to be controlled in relation to the position of the one end relative to the other end thereof and control means for directing a source of pneumatic fluid to at least one of the actuators to extend the one end of the unit by the degree of actuation of the one actuator and for thereafter disconnecting the source from that one actuator to collapse the one end of the unit by the degree of deactuation of the one actuator.

3,739,694

APPARATUS FOR MAKING PLASTIC BAGS

Francis A. Davis, Jr., Chalfont, Pa., assignor to Paramount Packaging Corporation, Chalfont, Pa.

Continuation-in-part of Ser. No. 82,257, Oct. 20, 1970, Pat. No. 3,654,841. This application Nov. 25, 1970, Ser. No. 92,735
Int. Cl. B31b 1/14, 1/64
U.S. Cl. 93—33 H 7 Claims



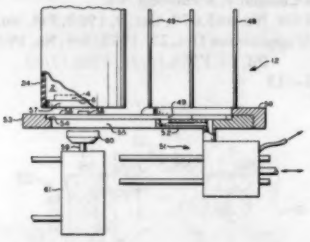
Apparatus is disclosed for making open-gusset bags from overlapping webs of thermoplastic material. A notch-perforator is provided along a side edge of the web for providing sets of notches and perforations or slits at spaced points along the web. V-shaped notches are applied to the gusset portion of the web and then the web is slit and welded transversely to divide the web into bags.

3,739,695

BOTTOM MEMBER INSERTING APPARATUS FOR CONTAINER-FORMING MACHINE

Carl R. Peacock, Fulton, N.Y., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 868,789, Oct. 23, 1969, Pat. No. 3,628,428. This application Sept. 20, 1971, Ser. No. 182,043
Int. Cl. B31c 1/06
U.S. Cl. 93—39.1 R 4 Claims



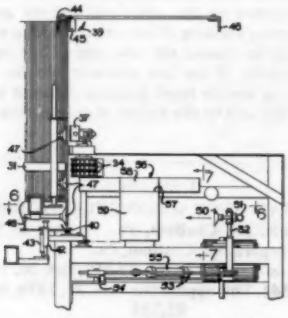
An apparatus having an aligning element, a rim extending around a portion of a receiving surface of the aligning element, a pair of holding lugs attached to the rim, and an inserting rod movable relative to the aligning element for inserting a bottom member into a chamber of an adjacently positioned body.

3,739,696

CARTON DELIVERY AND EXPANDING APPARATUS

Reinhold A. Pearson, deceased, late of East 304 Second Avenue Spokane, Wash. (by Alma Pearson, executrix)

Filed Apr. 21, 1972, Ser. No. 246,256
Int. Cl. B31b 1/76, 5/02
U.S. Cl. 93—53 SD 15 Claims



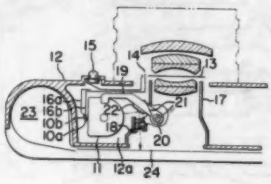
An apparatus for setting up cartons, including a magazine that holds a horizontal stack of vertically oriented collapsed cartons. A receiving station accepts the cartons as they are fed thereto from the magazine by a moving conveyor lug and pushing bracket. Stationary vacuum cups and cooperative moving vacuum cups engage opposed panels of each carton and expand it to a rectangular open configuration laterally adjacent to the receiving station. A vertically moveable trough initially receives the collapsed carton at the receiving station and is subsequently moved downwardly clear of the carton prior to expansion. The lower rear flap of each carton is engaged by an inclined pushing element upon carton expansion, and the carton is subsequently pushed forwardly as the rear flap and a subsequently engaged front flap are bent to horizontal positions inward of the carton. Each carton is subsequently received between moving belt flights and carried through guide rods that fold the side flaps. The cartons are delivered to a horizontal receiving table where a vertical mandrel exerts pressure on the bottom flaps to secure an adhesive bond between them.

3,739,697

DATA RECORDING DEVICE FOR USE WITH CAMERAS

Fumihiro Miyagawa, Tokyo, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

Filed Mar. 29, 1972, Ser. No. 239,205
Claims priority, application Japan, Mar. 31, 1971, 46/22563
Int. Cl. G03b 17/24
U.S. Cl. 95—1.1 8 Claims



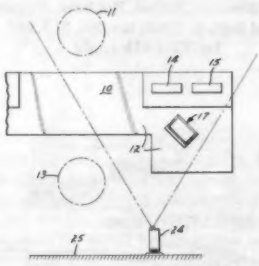
A data recording device for incorporation in a camera which enables appropriate data associated with a particular subject to be recorded in the same frame on a film or at an appropriate position outside of the frame on the film in the camera by removably inserting therein a data capsule including data rings bearing the data to be recorded. The selected data are illuminated by means within the capsule and projected onto the film through a projection lens located in the camera body. This projection lens is automatically covered or sealed by a mirror on a spring-loaded lever when the data capsule is removed from the camera so that external light is prevented from entering the projection lens and passing onto the film. On the other hand, the projection lens is automatically uncovered to project the selected data which is reflected by the mirror when the data capsule is inserted into the camera.

3,739,698

APPARATUS FOR PHOTOGRAPHING A PERSON WHILE A DOCUMENT IS HANDLED AT A WORK STATION

Richard Alan De Vries, New Brighton, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Jan. 3, 1972, Ser. No. 214,923
Int. Cl. G03b 17/24
U.S. Cl. 95—1.1 10 Claims



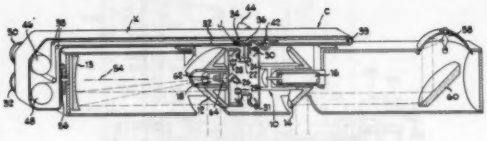
A photographic record of a person at a work station that can later be at least approximately identified with a document that was handled at the work station while the person was there is provided by simultaneously displaying a code adjacent the person, applying the same code to the document handled, and photographing on one film both the person and the displayed code.

3,739,699

PANORAMIC AERIAL CAMERA

Walter L. Colterjohn, and Waldemar B. Karkow, Jr., both of 1201 Oak Ridge Circle, Barrington, Ill.

Filed Jan. 5, 1972, Ser. No. 215,519
Int. Cl. G03b 37/02
U.S. Cl. 95—12.5 6 Claims



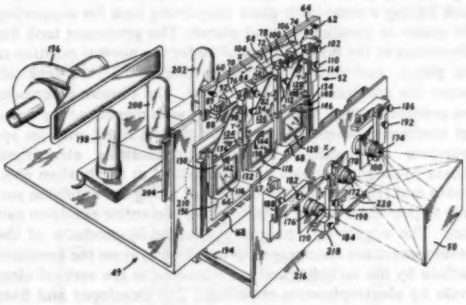
A panoramic scanning camera adapted to scan a plurality of adjacent narrow transverse strips of the terrain being photographed. Changes of scale, which cause discontinuity between adjacent images, are compensated for by using an optical system which rectifies the image by varying the magnification thereof as a function of the angle between the optical axis and the nadir, viz. the scan angle.

3,739,700

PREREGISTERED MULTISPECTRAL PHOTOGRAPHS

Edward F. Yost, Jr., Northport, N.Y., assignor to Spectral Data Corporation, Hauppauge, N.Y.

Filed June 24, 1970, Ser. No. 49,252
Int. Cl. G03b 33/04
U.S. Cl. 95—12.2 1 Claim



Multispectral photographs preregistered for projection are made by reproducing a first set of multispectral photographs, taken by a multispectral camera, to provide a second set of photographs all on the same scale. The photographs of the second set are simultaneously projected on a viewing screen, and their positions are adjusted so that the projected images are accurately superimposed. The photographs of the second set are reproduced in their adjusted positions to provide a third set of photographs on a single strip of film. The photographs of the third set are preregistered. A series of sets of photographs preregistered in this manner can be projected with great ease, since no adjustment of the projector between successive projections is necessary.

3,739,701

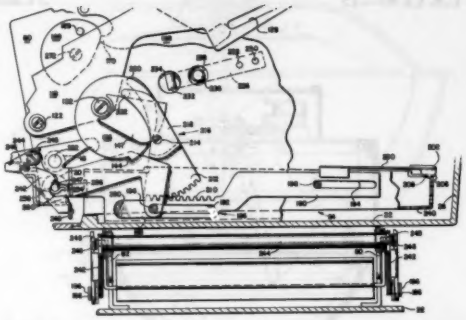
NOVEL PHOTOGRAPHIC CAMERA FILM PROCESSING MEANS

Irving Erlichman, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 20, 1971, Ser. No. 209,615
Int. Cl. G03b 17/52
U.S. Cl. 95—13 20 Claims

The present invention envisions a reflex camera having a specular surface within the optical path to the film plane. An operator mechanism positions a viewing surface closely proximate the film plane for focusing purposes and in a subsequent exposure mode positions a reflective surface within the optical path in a position causing a coincidence of a focal plane with the film plane.

The camera includes a processing station, having a pair of processing rolls, and a support for locating a film-advancing apparatus for engaging and moving the film unit, subsequent



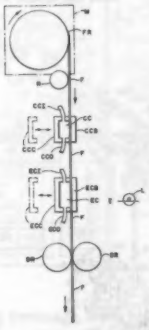
to exposure, from its exposure position into the bite of said processing rolls. The processing rolls are initially releasably retained in predetermined spaced relation to facilitate the reception of the exposed film unit for processing. Thereafter, the releasable retaining means is disengaged to allow the processing rolls to resiliently close on the film unit. The releasable retaining means is further disabled to prevent it from securing the rollers in spaced relation as a result of their being urged apart, as by a high spot on the film unit.

3,739,702

INSTANT STABLE FILM PROCESSING METHOD

David C. Wender, Glencoe, and Tung H. Jeong, Lake Forest, both of Ill., assignors to International Holographics, Inc., Lake Forest, Ill.

Filed Mar. 9, 1972, Ser. No. 233,031
Int. Cl. G03b 17/50
U.S. Cl. 95—14 6 Claims



In accordance with a stable, almost instantaneous film processing method, film is preconditioned in a chemically inert but compatible conditioning fluid. Thereafter, the preconditioned film is advanced into an exposure chamber in which it is sealed in the presence of conditioning fluid and maintained under pressure so as to spatially stabilize the film. The film is then exposed, and thereafter developing fluid is metered into the exposure chamber under pressure in order to develop the film in place while maintaining the spatial stability thereof. The speed of the development step may be enhanced further through the use of heated developing fluids or special developing agents.

3,739,703

CONCEALMENT OF CAMERAS FOR OBSERVATIONAL PURPOSES

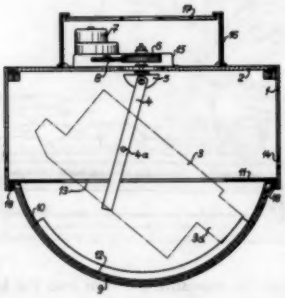
Guy Behles, 9, rue Madame de Stael, 1201 Geneva, Switzerland

Filed Mar. 8, 1971, Ser. No. 122,112

Claims priority, application Switzerland, Mar. 9, 1970, 3285/70

Int. Cl. G03b 37/02

U.S. Cl. 95—15 3 Claims



A camera for observing a selected area is concealed by a hollow dome-like member partially metallised to form a convex mirror from the point of view of an observer in the selected area, whilst allowing light to pass through the member from the area to the camera.

3,739,704

FOCAL PLANE SHUTTER CONTROL MECHANISM FOR A PHOTOGRAPHIC SHUTTER

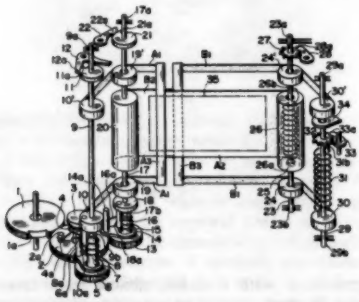
Kazuhiro Akiyama, Saitama, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka-shi, Osaka-fu Japan

Filed Nov. 8, 1971, Ser. No. 196,353

Claims priority, application Japan, Nov. 9, 1970, 45/97854; Nov. 14, 1970, 45/112516

Int. Cl. G03b 9/28

U.S. Cl. 95—57 14 Claims



A focal plane shutter control mechanism wherein means are provided for equlizing the inertias of the front and rear screens and their associated drive mechanisms so as to eliminate uneven exposures. A transmission means for driving first and second wind-up gears associated respectively with the front and rear screens is disengaged and a cam member is actuated by over-driven bias means to compensate for the overlap of the front and rear screens in their cocked positions.

3,739,705

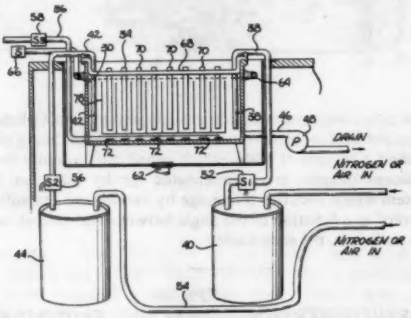
PHOTOGRAPHIC PLATE DEVELOPMENT SYSTEM

Daniel J. Lasky, San Jose, Calif., assignor to U.S. Electro-Optical Incorporated, Santa Ana, Calif.

Filed Nov. 1, 1971, Ser. No. 194,727

Int. Cl. G03d 3/10

U.S. Cl. 95—89 R 14 Claims



A photographic plate development system for batch processing of photographic plates to provide consistent and high quality plates. The system is comprised of a processor tank having a removable plate supporting rack for supporting the plates in parallel, vertical planes. The processor tank has electrodes at the bottom thereof under the normal position of the plates, and vertical electrodes disposed in the tank adjacent the emulsion side of the plate. The bottom electrodes are provided with a negative polarity with respect to the vertical electrodes when the processor tank is filled with an appropriate developing solution. The resulting electrolysis causes hydrogen bubbles to be produced at the bottom electrodes and rise through the developer along the emulsion surface to provide a gentle turbidity over the entire emulsion surface. The negatively charged particular by-products of the development are encouraged to break away from the emulsion surface by the turbidity and are attracted to the vertical electrode by electrophoretic attraction. The developer and fixer are delivered to the processor tank under pressure, and a drain pump is provided to allow the rapid draining of the processor tank. An outer tank is provided around the processor tank for containing and rinsing away any slop-over from the processor tank.

3,739,706

PHOTOGRAPHIC PROCESSOR

Heinz Peter Carstens, 1340 Danforth Road, Apt. 702, Toronto, Ontario, Canada

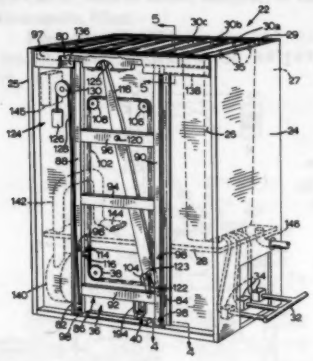
Filed Dec. 9, 1971, Ser. No. 206,477

Int. Cl. G03d 3/10

U.S. Cl. 95—89 D 4 Claims

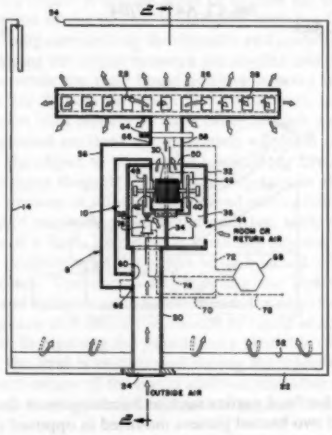
A device for developing photographic prints, transparencies and the like automatically. The device consists of a plurality of tanks spaced longitudinally between a pair of parallel rails which carry a print support adapted to suspend the prints in the tanks. A transport mechanism is coupled to the rails for lifting the print support upwardly out of one tank and then

longitudinally to position the print support above an adjacent tank, and finally to lower the print support into the adjacent



tank. An agitator is also included to oscillate the print support vertically while the prints are in each of the tanks.

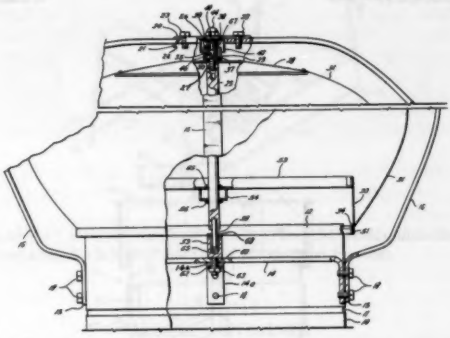
3,739,707
SMOKE-FUME EXHAUST SYSTEM
George F. Knapp, Chagrin Falls, Ohio, assignor to MKM Corporation, Chagrin Falls, Ohio
Filed May 1, 1972, Ser. No. 249,384
Int. Cl. F24f *13/00*
U.S. Cl. 98—33 R **12 Claims**



A smoke-fume exhaust system including a room air circulation system of the type that normally mixes source or conditioned air with room recirculated air. A detector responsive to the presence of smoke and fumes in the room causes the air circulation system to change the direction of air flow therethrough exhausting the room of the smoke and fumes as by actuating a first damper which isolates the blower from source air so that it only draws room air, and also actuating a second damper which directs the blower exhaust into a bypass duct.

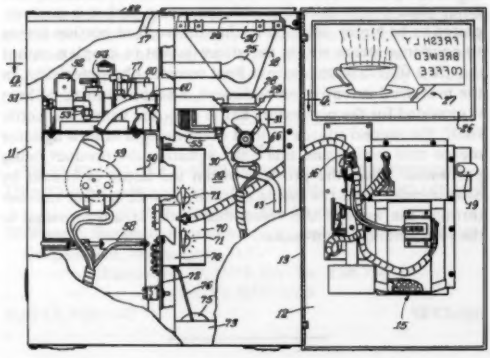
In the case of multiple rooms, the detector sensing smoke and fumes in one room may be used to control the air flow through systems of adjacent rooms in such a manner that the systems of adjacent rooms only admit source or outside air, which pressurizes the adjacent rooms preventing the spread of smoke and fumes to the adjacent rooms.

3,739,708
TURBINE VENTILATORS
John V. Felter, 1307 Ashland, Houston, Tex.
Filed Dec. 6, 1971, Ser. No. 204,949
Int. Cl. F23l *17/02*
U.S. Cl. 98—72 **4 Claims**



Turbine ventilators having sealed lubrication at the lower turbine shaft end, having anti-noise connections between the lower turbine support ring and the shaft, and having an upper bearing assembly to compensate for side sway caused by wind pressure.

3,739,709
BEVERAGE BREWER
Franz L. Herbsthofer, Wilmette; Harvey R. Karlen, Chicago, and Herbert E. Wagner, Tinley Park, all of Ill., assignors to Cory Corporation, Chicago, Ill.
Filed Jan. 20, 1971, Ser. No. 107,903
Int. Cl. A47j *31/00*
U.S. Cl. 99—289 **22 Claims**



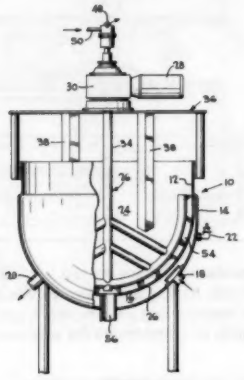
Apparatus for brewing beverage from readily soluble powdered beverage material, such as freeze-dried coffee. Provisions are incorporated for maintaining suitable areas of the system dry to preclude caking and the like to assure maintenance-free controlled brewing operation of the apparatus. Means are provided for effecting improved mixing of the powdered beverage concurrent with the beverage liquid in a mixing chamber. These means may also define a portion of the means for maintaining a portion of the system dry. Delivery of the pulverulent, or powdered, beverage material is controlled by improved valve structure including means for cutting the particulate material at the edges of the opening controlled by the valve means, thereby to preclude incomplete termination of the delivery of the powdered beverage material.

3,739,710

PROCESSING KETTLE

Ralph E. Costa, Lutherville, and Walter W. Trevillian, Baltimore, both of Md., assignors to B. H. Hubbert & Son, Inc., Baltimore, Md.

Filed Dec. 30, 1971, Ser. No. 214,321
Int. Cl. A47j 27/18
U.S. Cl. 99—348 6 Claims



A novel improved processing kettle is disclosed, the kettle comprising an inner hemispherical plate defining an inner lining and an outer hemispherical shell at least partially surrounding the inner plate and forming a steam-jacket space therebetween. Means are disposed through the outer shell providing entrance and egress of steam to and from the steam-jacket so as to heat a product within the kettle that is being mixed. Importantly, at least a portion of the surface of the inner plate communicating with the steam jacket is contemplated to be highly polished so that this surface portion serves to condense steam within the steam-jacket in droplets rather than in a film so as to improve heat transfer characteristics. In the preferred inventive embodiment, a second source of heat is provided for the processing kettle disposed within the kettle itself, the second source of heat comprising a hollow agitator means thus mixing and thermally agitating the product being processed. Thus, the product within the kettle is heated by heat transfer from the inside agitator, as well as heat transfer through the walls of the vessel due to the steam provided in the surrounding steam-jacket.

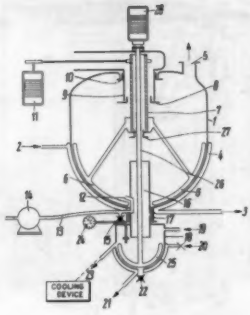
3,739,711

APPARATUS FOR CONTINUOUS PRODUCTION OF TOFFEE-SOFT CARAMEL AND SIMILAR MASSES OF THE SWEETS INDUSTRY

Gunter Nieblach, Bemerode, Germany, assignor to Otto Hansel GmbH, Hannover, Germany

Filed Apr. 19, 1971, Ser. No. 135,244
Int. Cl. B01f 7/20
U.S. Cl. 99—348 14 Claims

An apparatus for the continuous production of toffee-, soft-caramel- and similar masses of the sweets-industry having a boiling vessel equipped with stirring means, which comprises a continuously operating feeding device for the raw material to be boiled. An inlet is connected with the feeding device and an outlet is formed as an overflow.

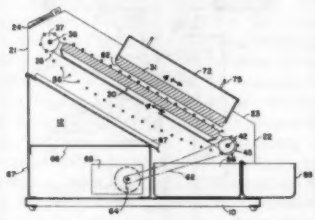


3,739,712

APPARATUS AND METHOD FOR COOKING HAMBURGERS OR THE LIKE

Roland L. Duning, Indianapolis, Ind., assignor to Burger Chef Systems, Inc. (BC), Indianpolis, Ind.

Filed Jan. 27, 1971, Ser. No. 110,194
Int. Cl. A47j 37/04
U.S. Cl. 99—349 6 Claims

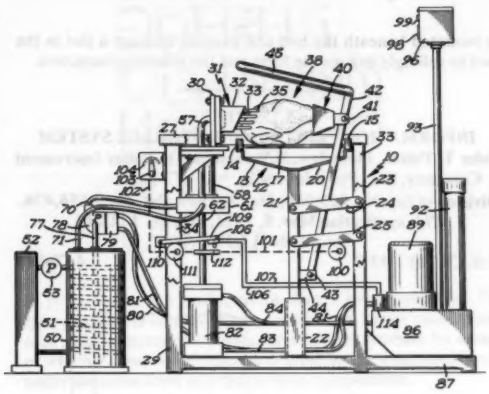


A cooker for food patties such as hamburgers or the like is comprised of two heated platens mounted in opposed relation to one another to provide opposed parallel cooking surfaces which are spaced apart no greater than the thickness of the patty to be cooked. An endless chain conveyor runs continuously through the gap between said opposed surfaces and carries the patties into cooking contact with said platens. Said conveyor is formed of a series of interconnected and spaced apart transverse elements which are maintained in a plane lying between and parallel to said opposed surfaces. The arrangement results in each patty, upon entering the gap between said opposed platen surfaces, being squeezed by one of said platens between successive transverse elements of said conveyor and into contact with the other platen as the conveyor elements in turn become partially imbedded in the surface of the patty. The chain is thus provided with sufficient traction to draw said patties through said gap, with both sides of the patties in surface contact with the opposed heating surfaces of said platens, thereby cooking said patties by heat applied conductively to both sides thereof simultaneously.

3,739,713
INJECTING APPARATUS

Jagannath M. Kudale, Minneapolis, and Donovan H. Lumby, Brooklyn Center, both of Minn., assignors to Land O'Lakes, Inc., Minneapolis, Minn.

Filed Apr. 17, 1972, Ser. No. 244,804
Int. Cl. A23b *1/16*; A22c *21/00*; A47j *43/16*
U.S. Cl. 99—533 12 Claims



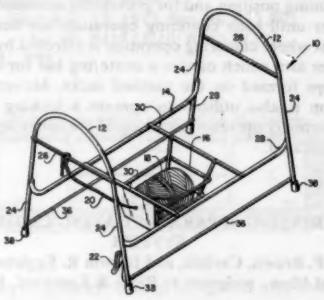
An injecting apparatus and method for injecting a liquid additive at high pressure into an object having converging opposite ends, such as a fowl, in which there is a table upon which the object is placed, a set of nozzles for engaging one end portion of the object, a clamping member for engaging and partially surrounding the opposite end portion, and means for clamping the object between the nozzles and the clamping member while the fluid liquid additive is being injected. The nozzles are formed in two groups which vary in length and disposition with respect to each other in such a manner that their terminal portions approximately conform with the surface of the object to be injected, such as the breast of a fowl. The passages through the nozzles also vary in size so that a greater amount of liquid is introduced into certain portions of the object requiring more liquid additive, such as the breast portion of a fowl. The table is vertically adjustable to enable proper positioning of the object to be injected with respect to the nozzles. The means for injecting the liquid includes a piston and cylinder and there is means for adjusting the stroke of the piston and hence the amount of liquid additive which is injected. In injecting the liquid into a yieldable object such as a fowl, the fowl is compressed during the injecting operation to prevent escape of the liquid additive, and after the injecting operation is completed, is released to assume its normal shape.

3,739,714
DEVICE FOR HOLDING AND BUNDLING NEWSPAPERS

William E. Howard, West Hartford, Conn., assignor to Materials Handling Systems, Inc., West Hartford, Conn.

Filed Aug. 18, 1971, Ser. No. 172,766
Int. Cl. B65b *13/16*
U.S. Cl. 100—34 7 Claims

A device for holding and bundling newspaper is made essentially of bent wire and comprises two end walls and a bottom wall for engaging the two sides and bottom, respectively, of a stack of newspapers placed therein. The newspapers carried by the device extend outwardly beyond the bottom wall of the device at both of their ends so that the end portions of the stack are free to receive cord passed therearound for tying the stack into a bundle. Prior to bundling the device holds the newspapers in a cupped condition so as to inhibit downward

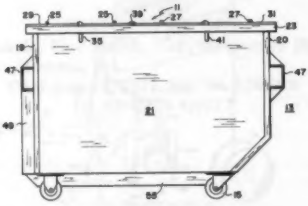


sag of their unsupported end portions, and the device includes a container for a ball of cord used in tying the bundles.

3,739,715
REFUSE CONTAINER

John M. Ambrose, 29282 Chenwood Court, Farmington, Mich.

Filed June 4, 1971, Ser. No. 150,131
Int. Cl. B30b *15/00*
U.S. Cl. 100—100 7 Claims

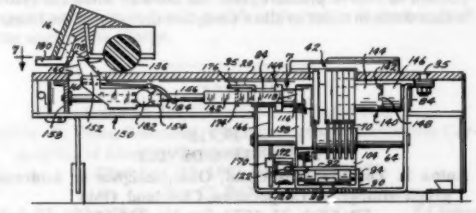


A portable refuse container having a substantially rectangular or tapered body with an open top portion, pivotable lid means connected to the top portion, whereby refuse may be inserted into the hollow body upon the lifting of the lid, and a slidable compacter means mounted within the body for compacting the refuse inserted therein.

3,739,716
TRAVELING CYLINDER IMPRINTER WITH WHEEL-CENTERING MEANS AND CYLINDER-LOCKING MEANS FOR VARIABLE DATA INPUT

William P. Barbour, Alexandria, Va., assignor to Control Data Corporation, Washington, D.C.

Filed Apr. 29, 1971, Ser. No. 138,730
Int. Cl. B41f *3/60*
U.S. Cl. 101—45 18 Claims



A variable data imprinter for use in recording credit card sales transactions is provided having a plurality of indicia bearing toothed print wheels and a corresponding plurality of toothed racks for cooperation with the print wheels so that the

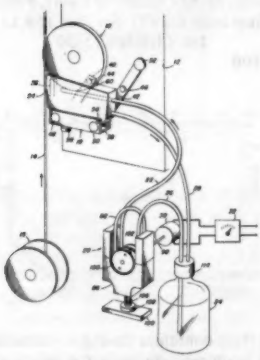
print wheels are selectively indexible with respect to a printing position by movement of the respective racks. Control means are provided for centering the print wheels with respect to their printing position and for preventing actuation of a printing roller until such centering operation has been effected. The print wheel centering operation is effected by movement of a lever arm which carries a centering bar for engagement with stops formed on the toothed racks. Movement of the lever arm is also utilized to operate a locking mechanism which normally prevents actuation of the roller until the lever arm is operated.

3,739,717

WIRE PRINTING APPARATUS HAVING CLOSED INKING SYSTEM

Charles P. Brown, Carlisle, and Derwin R. Eggleton, Concord, both of Mass., assignors to Riggs & Lombard, Inc., Lowell, Mass.

Filed July 2, 1971, Ser. No. 159,224
Int. Cl. B41f *17/10*; F04b *43/12*; B41f *31/08*
U.S. Cl. 101—37 **8 Claims**



Ink is applied through a substantially closed system onto the surface of an engraved wheel which prints a legend or design onto a wire running tangentially against the wheel. A peristaltic pump delivers ink from a closed ink reservoir through a conduit formed with a discharge opening dimensioned to accommodate the periphery of the printing wheel which rotates in the conduit opening to receive a coating of ink. A fork-shaped plastic wiper removes excess ink from the wheel prior to engaging the wire. An applicator housing is formed with a drain to collect excess ink and return it via a conduit to the ink reservoir. The housing is spring-loaded to bear against the wheel and is mounted for movement as a unit to and away from the wheel to permit cleaning and/or changing of the wheel. The peristaltic pump is formed with a movable wall portion to relieve pressure from the conduit when the system is shut down in order to allow complete draining of the lines.

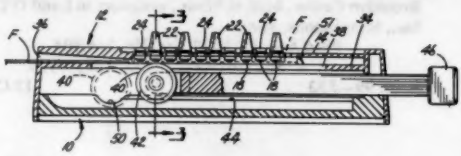
3,739,718

IMPRINTING DEVICE

Anton Z. Zupancic, Cleveland, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio

Filed Feb. 23, 1972, Ser. No. 228,696
Int. Cl. B41f *3/20*
U.S. Cl. 101—45 **1 Claim**

An imprinting device having a frame which mounts a form supporting bed. The frame also slidably mounts strip members above the bed having printing characters on the underside and visually readable characters on the upper side. A roller platen



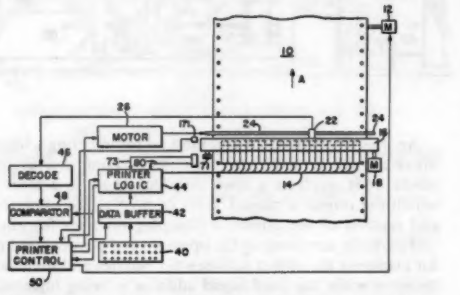
is mounted beneath the bed and extends through a slot in the bed to rollingly engage the form and the printing characters.

3,739,719

INFORMATION PRINTING AND STORAGE SYSTEM

John T. Potter, Plainview, N.Y., assignor to Potter Instrument Company, Inc., Plainview, N.Y.

Division of Ser. No. 823,054, May 8, 1969, Pat. No. 3,656,426.
This application Mar. 8, 1971, Ser. No. 122,212
Int. Cl. B41j *1/20, 3/00*
U.S. Cl. 101—93 C **4 Claims**



An information printing and storage system in which a printer prints alphanumeric characters and a self-clocking code pattern on paper or card stock. A transducer scanning the printed lines senses the code pattern and provides an electrical output signal representative of the information imprinted.

3,739,720

METHOD OF SELECTIVE HIGH SPEED PRINTING USING LETTERS WITH FLARED LIMBS AND GAPS TO COMPENSATE FOR SMEARING

David H. Jones, Sarasota, Fla., and Alvin E. Kolthoff, Indianapolis, Ind., assignors to Electronic Data Preparation Corporation, Bradenton, Fla.

Filed Oct. 6, 1970, Ser. No. 78,409
Int. Cl. B41j *1/26*; B41b *1/02*
U.S. Cl. 101—93 C **18 Claims**

Printing methods and apparatus applicable to computer printing of the kind wherein a continuously rotating cylinder is provided with a plurality of rows of type characters operable to imprint paper or other print-receiving media through an ink transfer medium. The characters of each row of characters are identical and unlike the type characters in any other row and the array or arrangement of rows of characters is such with reference to the direction of rotation of the cylinder and the probable frequency of printing of the different characters in the printing of the composition that the characters are presented at a printing station in the order of increasing probability of printing. The type characters on the drum are so constructed with reference to the direction of rotation of the cylinder as to compensate for smearing of the printed characters due to wiping movement of the characters relative to the print-receiving medium and thereby enable the printed characters to present an appearance unmarred by smearing.

Some of the type characters on the cylinder are adapted to overprint or be overprinted by other type characters so as to produce printed characters unlike any of the type characters on the cylinder, and others of the type characters are shaped

to print characters having more than a single meaning. The type characters include upper case letters, lower case letters, numerals, punctuation marks, and special symbols by means of which a composition can be printed by the computer in virtually the same form as a typewritten composition.

3,739,721

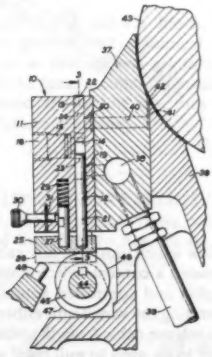
INKING PUMP MECHANISMS FOR PRINTING MACHINES

Dzeslaw Miarkowaki, Kingscliffe, and Edward Leslie Smith, Peterborough, both of England, assignors to Baker Perkins Limited, Peterborough, England

Filed May 10, 1971, Ser. No. 141,699

Int. Cl. B41f *31/08*

U.S. Cl. 101—366 **7 Claims**



Pump unit for metered liquid feed in a printing press, for example used as part of a multiple pump ink rail assembly in which each pump feeds ink to a column width of an inking cylinder, has a body defining a chamber with inlet and outlet ports, a piston reciprocating in a guide of the body to vary the volume of the chamber, and a slide valve reciprocating in a further guide in the body to open and close said ports in timed relationship to the operation of the piston, the piston and slide valve being driven by rotating cams. Conveniently a single cam shaft drives all the pumps of an assembly and provision is made for varying the stroke of the piston.

3,739,722

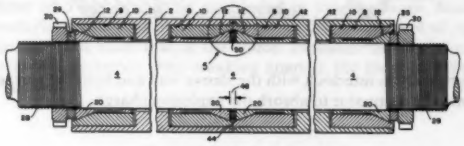
PRINT ROLL AND MOUNTING MEANS

Robert A. Zottoli, Braintree, Mass., assignor to Gross Instrument Company, Quincy, Mass.

Filed Aug. 13, 1971, Ser. No. 171,501

Int. Cl. B41f *13/10*; B21b *31/08*

U.S. Cl. 101—375 **8 Claims**



A plurality of plate cylinder printing rolls on a shaft in axial alignment and with the inner ends in tight abutment, each having a collet sleeve provided at each end of the roll, collets on the shaft and in the sleeves, threads and nuts on the shaft for exerting axially directed forces against the collets, resilient deformable O-rings between the opposing faces of the collets at the abutting inner ends, the said forces causing the O-ring to deform to cause the collets to be driven inward to grip the shaft at the inner abutting ends while simultaneously the collets at the outer ends are driven inwardly to tighten the latter on the shaft.

3,739,723

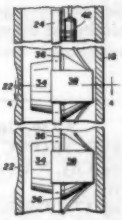
PERFORATING GUN

John R. Hakala, Fort Worth, Tex., assignor to Harrison Jet Guns, Inc., Houston, Tex.

Filed Aug. 23, 1971, Ser. No. 174,088

Int. Cl. E21b *43/117*

U.S. Cl. 102—20 **10 Claims**



A shaped charge assembly for a tubular oil well perforating gun includes a channel member having spaced apertures in the web thereof with shouldered shaped charges extending through the apertures with the shoulders engaging the web of the channel member. A spring clip engages the edges of the channel and the apex of the charge to secure the charge in the aperture and to maintain a ribbon detonator in contact with the apex of the charge.

3,739,724

SAFETY DETONATING APPARATUS

Elvin W. Tiam, Redmond, Wash., assignor to Explosives Corporation of America, Issaquah, Wash.

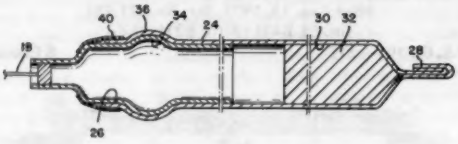
Filed Aug. 23, 1971, Ser. No. 173,878

Int. Cl. F42c *19/12*

U.S. Cl. 102—28 R **5 Claims**

A primacord detonator having a protective containing sleeve removably mounted thereon. The rear portion of the sleeve encloses the detonator, and a forward portion of the sleeve forms an explosive energy absorbing chamber with

energy absorbing material therein. Upon accidental explosion the wall of the detonator adjacent the charge therein deforms



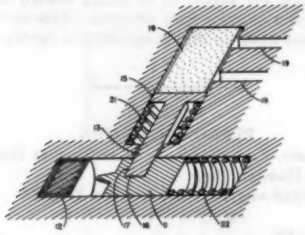
outwardly to interlock with the sleeve wall and hold the sleeve onto the detonator to absorb the explosive charge.

3,739,725

SELF-DESTRUCTIBLE FUZE

Robert W. Heinemann, Dover, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 9, 1968, Ser. No. 707,375
Int. Cl. F42c *15/36, 19/08, 15/00*
U.S. Cl. 102—70 **1 Claim**



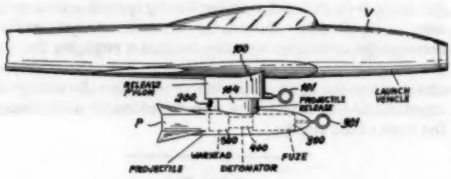
A mechanical device for use in self-destruction of a mine, said device being a spring-loaded withdrawal pin separately engaging a mating slot in a spring-loaded firing pin wherein withdrawal is actuated by the disintegration of the structural integrity of a rigid hydroscopic material upon the absorption of moisture.

3,739,726

ELECTRONIC FUZE

Robert H. Pintell, New City, N.Y., assignor to Intron International, Inc., Congers, N.Y.

Filed Aug. 17, 1970, Ser. No. 64,297
Int. Cl. F42c *11/04, 11/06, 15/40*
U.S. Cl. 102—70.2 R **10 Claims**



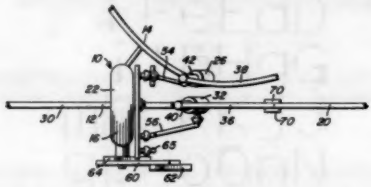
A fuze for ordnance projectiles to be launched from a vehicle is armed, after separation from its launcher, by mechanical closure of switches with the aid of a delayed-action squib detonating by an electric charge stored on a capacitor. The fuze system includes means for charging the above capacitor at the time of launch, thus insuring the inert state of the fuze under conditions of storage, transportation and loading into the launch vehicle.

3,739,727

AUTOMATIC SWITCH FOR SLAUGHTERHOUSE AND MEAT PACKER RAILS

Beryl A. Bedford, 701 Hurlingame Avenue, Redwood City, Calif.

Filed July 28, 1971, Ser. No. 166,695
Int. Cl. E01b *25/26*
U.S. Cl. 104—103 **10 Claims**



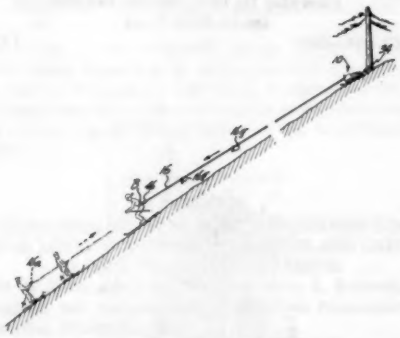
A pair of rail switch sections supported for alternate movement into and out of operative position with each initially moving in an upward inclined direction upon initial shifting from its operative position and thereafter being swung to an out-of-the-way position, while one switch rail section is being raised out of initial operative position and then swung to an inoperative position the other switch rail section is being swung in the same direction toward a position elevated slightly above its operative position and then lowered into final operative position.

3,739,728

PORTABLE SKI TOW AND METHOD OF OPERATING SAME

John L. Thompson, Carbon River Ranch, Carbonado, Wash.

Filed July 31, 1970, Ser. No. 59,944
Int. Cl. B61b *11/00*
U.S. Cl. 104—173 **8 Claims**



A portable ski tow winch unit with tow cable serving also as a control link between a control switch station on the handle end of the tow cable and controlled actuation means in the winch unit for operating the winch unit either to wind up cable under power or to release cable from the winch spool, thereby enabling the winch to be used to pull itself to the top of a ski hill and when anchored at the top to be used by skiers to ascent the hill.

3,739,729

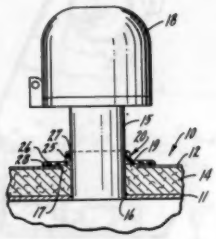
JACKET FLASHING

Edwin S. Carlson, Hammond, Ind., assignor to Union Tank Car Company, Chicago, Ill.

Filed June 4, 1971, Ser. No. 150,071
Int. Cl. B61d *5/00*
U.S. Cl. 105—358 **4 Claims**

A jacket flashing assembly to close openings which are required in the outer jacket of an insulated tank car to permit

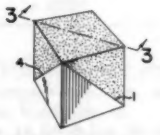
fittings to protrude through the jacket. The jacket flashing assembly includes a resilient disc having an opening in the central area thereof, of somewhat lesser dimension than the outside dimension of the fitting associated therewith, such that distortion of the opening during installation of the assembly about the fitting causes the central area of the disc to ellipti-



cally engage the fitting, forming a watershedding joint therebetween. The central area of the disc is bonded to the fitting and the outer periphery of the disc is bonded to the outer jacket.

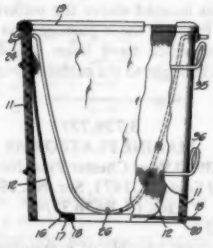
A similar type flashing is disclosed for use to close the opening in the jacket which receives the bolster pipe and bolster web.

3,739,730
CUBICAL BLOCK FROM TWO AXIALLY FITTED IDENTICALLY MOLDED SECTIONS
Frederick A. Horowitz, 1204 Oakland, Ann Arbor, Mich.
Filed Aug. 6, 1971, Ser. No. 169,627
Int. Cl. A47b *13/00*
U.S. Cl. 108—161 **6 Claims**



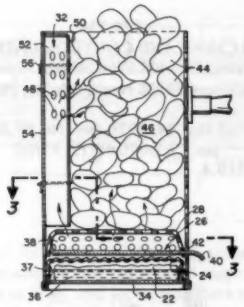
The instant article is a cubical block, hollow or solid, formed from two geometrically identical molded sections, each diagonally cut so that the two sections are complementarily fitted axially to form a cube. Depending upon the particular materials used, the instant cube may be ornamental or structural, or useful as a furnishing.

3,739,731
OPEN ENCLOSURE FOR EXPLOSIVE CHARGE
Patrick M. Tabor, 101 S. LaSenda Drive, South Laguna, Calif.
Filed Aug. 5, 1970, Ser. No. 61,173
Int. Cl. E06b *9/00*
U.S. Cl. 109—49.5 **11 Claims**



There is disclosed herein a device for partially enclosing explosives, such as bombs, to allow such explosives to be disposed of relatively safely. An exemplary device is an enclosure which may be considered as essentially an elastic container, for absorbing and directing the explosive forces, and may be substantially cylindrical dna open therethrough and formed from a number of laminations of suitable material, such as fiberglass. A support member may be provided in the enclosure for holding the explosive charge from intimate contact with the enclosure. The support member may be in the form of a net or curtain suspended in the enclosure, foam material within the enclosure, or the like. The structure of the enclosure is such that if the bomb explodes the enclosure delaminates rather then breaking apart in the form of flying fragments.

3,739,732
PORTABLE CHARCOAL IGNITER
Thomas A. Graham, P. O. Box 5427, San Mateo, Calif.
Filed May 24, 1971, Ser. No. 146,248
Int. Cl. F23b *1/02*
U.S. Cl. 110—1 F **9 Claims**

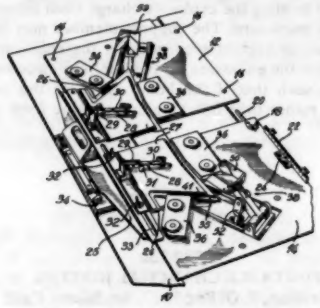


A container for receiving and igniting a quantity of charcoal. The container has an open top, a bottom and a generally perforated cylindrical vertical wall to which a carrying handle is fixed and comprises: a liquid fuel chamber with a fuel absorbent pad, the chamber defined by the bottom and an imperforate lower portion of the vertical wall and a screen mounted above the pad; a combustion chamber with an ignition wick supported on the screen, the combustion chamber defined by the screen, an apertured segment of the vertical wall, and a charcoal supporting grate; and, a perforated vertical flame channel fixed to the inside of the vertical wall above the grate to disperse ignited fuel gases to the upper reaches of charcoal contained by the remaining portion of the vertical wall.

3,739,733
AUTOMATIC POINT TRIMMING MACHINE FOR USE IN SHIRT MAKING APPARATUS AND THE LIKE
Ernst Schramayr, Dollard Des Ormeaux, Quebec, Canada, assignor to Ideal Equipment Co., Ltd., Montreal, Canada
Filed June 21, 1971, Ser. No. 154,789
Int. Cl. D05b *21/00*
U.S. Cl. 112—121.12 **8 Claims**

A machine for trimming the points of collars and the like garments comprising a holder having a pair of fixed platens each having a movable platen hinged thereon, guide means

between which a collar is placed over the pair of fixed platens, means for clamping the collar between the fixed and movable



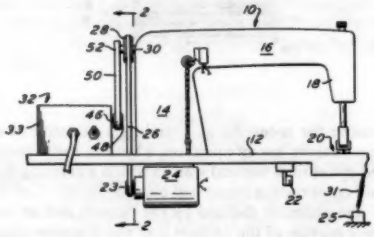
platens, and means for trimming the points of the collar held between the fixed and movable platens.

3,739,734

SEWING MACHINE AND CONTROL UNIT THEREFOR

Raymond A. Princiotta, 408 West Wayne Avenue, Aldan, and Antonio G. Salvucci, 3828 North 6th St., Philadelphia, both of Pa.

Filed Dec. 14, 1970, Ser. No. 97,898
Int. Cl. D05b *69/12, 35/08*
U.S. Cl. 112—219 A **13 Claims**



A sewing machine and an attachment therefor which enable repetitive, uniform sewing steps and related procedures to be done by a relatively unskilled sewing machine operator.

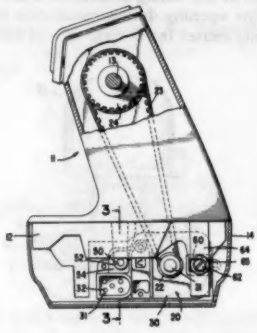
3,739,735

ELECTRIC MOTOR MOUNT FOR SEWING MACHINES

William L. Herron, North Caldwell, and Kenneth D. Adams, Madison, both of N.J., assignors to The Singer Company, New York, N.Y.

Filed May 1, 1972, Ser. No. 249,331
Int. Cl. D05b *69/12*
U.S. Cl. 112—220 **3 Claims**

A mounting arrangement for pivotally supporting an electric motor within the casing of a sewing machine with provision for angular adjustment of the motor to regulate the tension in a belt by which the motor drives the sewing machine and in which the pivotal motor support is arranged to provide for maximum belt tension adjustment with minimum disturbance in the registration of an electrical connector



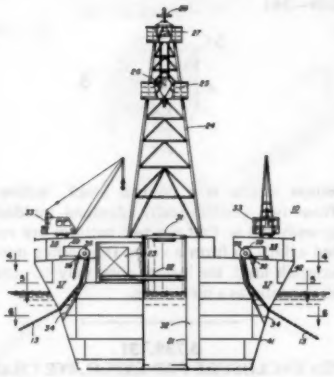
socket on the motor relatively to a clearance opening for the electrical connector in the sewing machine casing.

3,739,736

MOORING SYSTEM FOR DRILLING HULL IN ARCTIC WATERS

David W. Carreau, Mystic; Aake T. Fahlman, Groton, both of Conn., and Jospeh H. Dawsin, Jr., Westerly, R.I., assignors to General Dynamics Corporation, St. Louis, Mo.

Filed July 29, 1971, Ser. No. 167,223
Int. Cl. B63b *35/00, 35/44*
U.S. Cl. 114—0.5 D **5 Claims**



A mooring arrangement is provided for drilling hull intended to be used in Arctic waters wherein the mooring lines are connected to the hull at points substantially below the waterline but extended up through passageways in the hull to anchor windlasses located above the waterline. The mooring lines are fed up through these passageways by attachment to the end of lines which have been fed down through the passageways and brought to the surface by inflatable means

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3,739,737

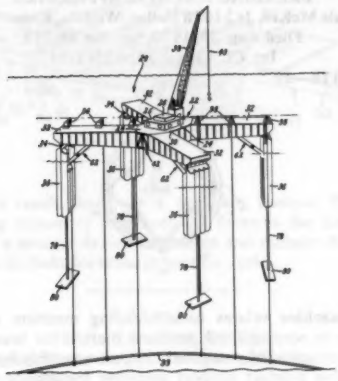
MARINE PLATFORMS

Robert J. Baier, 3960 West Chester Pike, Newtown Square, Pa.

Filed Sept. 17, 1971, Ser. No. 181,422
Int. Cl. B63b *35/44*
U.S. Cl. 114—0.5 D **22 Claims**

A floating platform capable of remaining stable during inclement weather conditions. The platform includes a central buoyant member equipped with a plurality of double articulated support members and float chambers located at spaced

locations about its periphery. The support members are pivotally movable between retracted positions generally aligned with a longitudinal axis of the central buoyant member and extended positions radiating outwardly of the central buoyant member. The float chambers are pivotally movable between retracted positions tucked under their associated



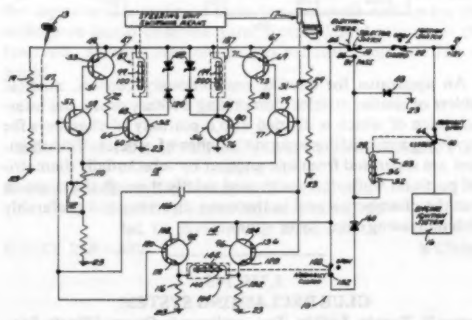
support members and an extended or vertical position by controlled flooding, and in a subsequent operation, the buoyant member is raised above the surface of the water. Damping devices are provided at the extremities of the float chambers and stationkeeping can be achieved by the use of anchors or by discharging water from appropriate ports in the float chambers.

3,739,738

SAFETY CIRCUIT FOR ELECTRIC STEERING SYSTEM

David T. Cavil, Menomonee Falls, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Nov. 16, 1970, Ser. No. 89,605
Int. Cl. B63h *25/24*
U.S. Cl. 114—144 R **10 Claims**



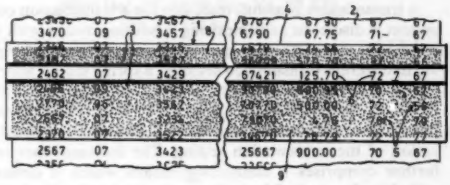
Disclosed herein is a control circuit for monitoring the steering system of a marine propulsion device, which control circuit includes a first position sensing potentiometer adapted to be connected to a source of electrical current and having a first wiper connected to a steering wheel to afford variation in the potential at the first wiper in accordance with the steering wheel setting, together with a second position sensing potentiometer adapted to be connected to a source of electrical current in common with the first potentiometer and including a second wiper connected to the swingable steering unit to afford variation in the potential at the second wiper in accordance with the position of the swingable steering unit, and switch apparatus adapted to be connected to a source of electrical current and to said wipers for generating an output when the difference in potential at the wipers exceeds a predetermined value. Such output can be employed to prevent operation of the marine propulsion engine ignition system or to otherwise alert the operator to the steering system malfunction evidenced by the difference in potential at the wipers above a predetermined value.

3,739,739

INSTRUMENT FOR ISOLATING ROWS OF PRINTED MATTER FOR READING

Roy J. Brase, 20563 Yeandle Street, Castro Valley, Calif.

Filed Aug. 24, 1972, Ser. No. 283,276
Int. Cl. B42d *9/00*
U.S. Cl. 116—119 **4 Claims**



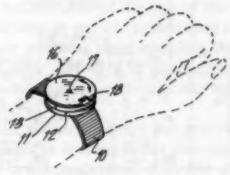
An instrument for use in quickly and accurately isolating each of separate straight lines of printed symbols such as letters or numerals or both, and increasing their clarity for reading in which a pair of parallel, spaced strips or lines midway between the opposite planar sides of flexible transparent material is positioned to define an elongated, clear, colorless, transparent band in the strip between said lines within which the printed symbols of one of said lines of printing are isolated for reading when said instrument is laid flat on the sheet with the line of printed symbols to be examined positioned between said straight lines of said pair.

3,739,740

WRIST MOUNTED PILL BOX

Stephen Fromer, 1535 Victory Boulevard, Staten Island, N.Y.

Filed Nov. 30, 1971, Ser. No. 203,400
Int. Cl. G09f *9/00*
U.S. Cl. 116—121 **3 Claims**



A convenient container for medication is provided which has time indicating means associated therewith and the con-

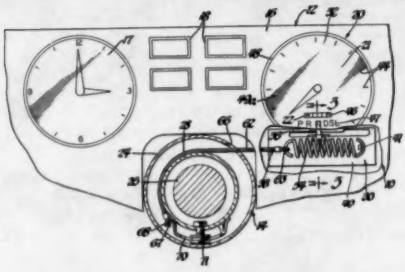
tainer is adapted to be attached to a wrist band such as a wrist watch strap. As medication is taken, the time indicating means is advanced to show when the next dose is to be taken. The device is very simple and inexpensive.

3,739,741

TRANSMISSION GEARSHIFT INDICATOR

William J. Freyermuth, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 15, 1971, Ser. No. 198,565
Int. Cl. G09f 9/00
U.S. Cl. 116—124 **1 Claim**



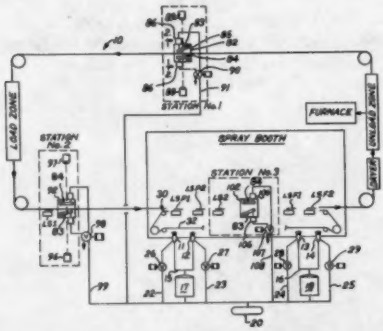
A transmission gearshift indicator for a transmission control system is disclosed as comprising a housing means with a dial associated therewith with spaced representations corresponding to different transmission settings, a spring means which has one end fixed to the housing means, and a pointer which is mounted between the ends of the spring means and which projects it to a position adjacent the dial to provide a visual indication of the transmission setting. The indicator mechanism further comprises a connecting means which is connected with the other end of the spring means and which is adapted to be connected with a rotatable gearshifting member, said connecting means moving either with or against the bias of said spring means in response to movement of the gearshifting member to effect different transmission settings whereby the pointer is moved distances across the dial less than the distances moved by the connecting means.

3,739,742

SPRAY ASSEMBLY MEMORY

Nick S. Racz, 4800 Chicago Beach Drive, Chicago, Ill., and Dvaid M. Higgins, 121 Washington Boulevard, Hoffman Estates, Ill.

Continuation-in-part of Ser. No. 23,890, March 30, 1970, abandoned. This application Nov. 18, 1970, Ser. No. 90,738
Int. Cl. B65g 49/02
U.S. Cl. 118—2 **24 Claims**



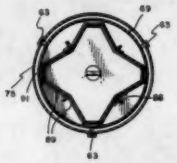
In a spray assembly, a single spray booth is provided for spraying different coats on a given article and a memory determines which coat is to be sprayed upon the article and the presence of articles of differing configuration is indicated or sensed, whereby different coats as well as articles of differing configuration may be sprayed on the same spray assembly at the same time.

3,739,743

BREADING MACHINE APPARATUS

Lloyd Dale McKee, Jr., 1816 Dallas, Wichita, Kans.

Filed Aug. 25, 1970, Ser. No. 66,755
Int. Cl. A23g 3/26; A23l 1/31
U.S. Cl. 118—19 **7 Claims**



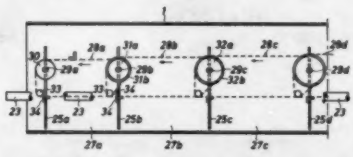
This machine relates to a breading machine apparatus operable to receive food products therein for breading the same on rotation of a product support assembly by a power means. The product support assembly includes a container drum assembly having a basket assembly therein. The basket assembly is operable to receive the food product while it maintains spaces therein for the breading material and constructed so as to agitate the food product on rotation of the container drum assembly.

3,739,744

SUGAR COATING APPARATUS

Finn Engelberth Eriksen, 150 Nakskovvej, 2500 Valby, Denmark

Filed June 14, 1971, Ser. No. 152,590
Claims priority, application Denmark, June 22, 1970, 3218
Int. Cl. B05c 9/00; A23g 3/26
U.S. Cl. 118—19 **5 Claims**



An apparatus for coating confectionary centers, medical tablets or similar articles, comprising a rotary drum, the internal space of which is divided into a plurality of chambers for receiving and holding separate batches of articles. The chambers are separated from one another by substantially diametrical partition walls that are moved axially through the drum so that the chambers travel in the same direction and preferably with increasing capacity or volume.

3,739,745

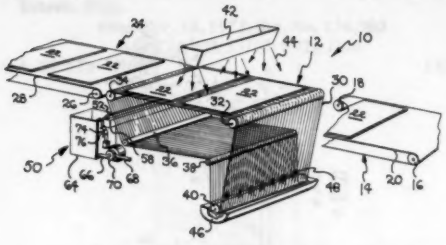
GLUE RECLAIMING SYSTEM

James N. Turpin, Lufkin, Tex., assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed June 21, 1971, Ser. No. 155,065
Int. Cl. B05c 5/00, 11/10
U.S. Cl. 118—7 **2 Claims**

An improved glue reclaiming system is provided for an automatic plywood layup line. A standard layup line, where glue is applied to veneer sheets and the sheets then placed together to form a multi-layered plywood panel, features the use of a plurality of round conveyor belts which collect excess glue

during the gluing process and necessitate the use of a water spray shower to remove the excess glue from these belts prior to recycling of the belts. This excess glue, when removed from the belts by means of a washing, is lost to the sewer system



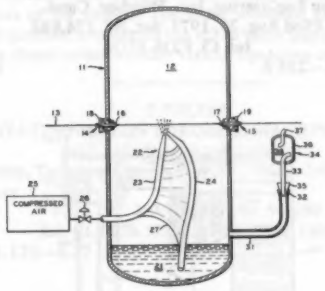
and, as a result, becomes a pollutant therein. The glue reclaiming system of this invention features the use of flat belts and a scraper device to remove and reclaim the excess glue from the belts for reuse in another cycle.

3,739,746

YARN COATING DEVICE

Rudolfs Kodis, Greenville, S.C., assignor to Phillips Petroleum, Bartlesville, Okla.

Filed June 3, 1971, Ser. No. 149,563
Int. Cl. B05c *5/00, 11/16*
U.S. Cl. 118—62 **8 Claims**



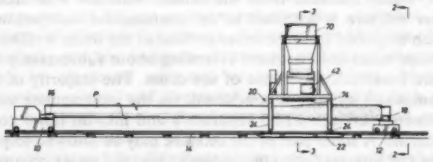
Yarn is passed through a chamber having a reservoir of a liquid addendum in the lower portion thereof below the yarn. An aspirator draws liquid from the reservoir and sprays the withdrawn liquid onto the yarn. Excess liquid returns to the reservoir. A liquid trap on the gas exhaust minimizes loss of liquid.

3,739,747

MACHINE FOR APPLYING COATING MATERIAL TO PIPE

Robert E. Sullivan, 8007 Mullins, Houston, Tex.

Filed Dec. 16, 1970, Ser. No. 98,788
Int. Cl. B05b *13/02*; B28b *21/00*
U.S. Cl. 118—320 **8 Claims**



A machine for coating pipe, making use of a dry mixture of coating materials, such as hydraulic cement, sand or gravel, and weight imparting material such as barite, iron oxide, or the like. The machine has a rotary impeller for projecting the dry mix from a supply source of the same toward the pipe to be coated, and includes moistening means, such as a water spray, through which the dry mixture passes after leaving the impeller to form a wet mixture which is impelled against the pipe.

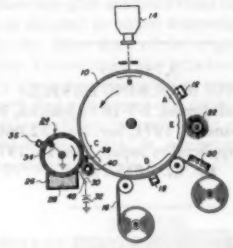
Means is provided for feeding the dry mix to the impeller in a substantially constant, regulated stream and for controlling the amount of water added whereby the consistency of the coating can be regulated. Mechanism is provided for causing the dry mix and water to be supplied simultaneously, automatically upon operation of the machine, and for independently regulating the flow of dry mix as well as the flow of water while the machine is in operation.

3,739,748

DONOR FOR TOUCHDOWN DEVELOPMENT

Alfred J. Rittler; Joseph Fantuzzo, both of Webster, and Raymond G. Williams, Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 15, 1970, Ser. No. 98,373
Int. Cl. G03g *15/08*
U.S. Cl. 118—637 **6 Claims**



Apparatus for developing a latent electrostatic image carried on an image retaining member comprising

a member including an electrically conductive layer and a dielectric layer having a generally continuous surface for carrying toner particles for the development of the latent image,

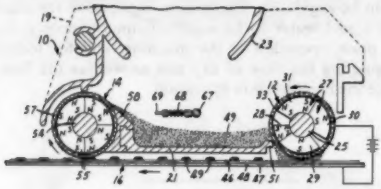
a plurality of stylii supported for relative movement with the donor member spaced from each other and positioned to contact the donor member enabling electrostatic charge to be deposited onto separate, discrete areas of the toner carrying surface of the donor member corresponding in size to the surface area of the tips of the stylii creating an electrostatic charge pattern comprising a plurality of lines on the donor member upon coupling the donor member conductive layer and stylii to an electrical energy source and upon moving the stylii and donor member relative to one another and

means to move the donor member relative to a supply of toner particles for loading toner particles onto the donor member in areas associated with the charge pattern of lines created by the plurality of stylii and to move the toner loaded donor member relative to the image retaining member for the development of the latent electrostatic image.

3,739,749
MAGNETIC POWDER APPLICATOR

Larry G. Kangas, St. Joseph Twp., St. Croix County, Wis., and Robert J. Kline, Grant Twp., Washington County, Minn., assignors to Minnesota Mining & Manufacturing Company, Saint Paul, Minn.

Division of Ser. No. 867,768, Oct. 20, 1969. This application June 4, 1971, Ser. No. 150,176
Int. Cl. G03g *13/00*
U.S. Cl. 118—637 **8 Claims**

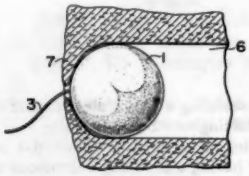


An applicator for uniformly applying magnetically responsive dry particulate material to broad areas on a web moved past the applicator to deposit the material in pattern areas attracting the material thereto. The applicator comprises an applicating roller having a plurality of magnetic members arranged about a shaft within a rotatable non-magnetic sleeve to provide a magnetic field around the roller having a feed zone with a radial field changing to a tangential field, an applicating zone with a stronger radial field following the feed zone and a return zone extending from the applicating zone to the feed zone and having a stronger tangential field immediately following the applicating zone. A scavenging roller has a plurality of magnetic members arranged about a rotatable shaft within a non-magnetic sleeve to carry any free particulate material applied by the applicating roller away from the web surface and back to a tray.

3,739,750
ANUS BLOCKING DEVICE

Kenichi Shinjo, Shinfujimiso, 2-7-18 Fujimicho, Tokyo, Japan

Filed June 11, 1971, Ser. No. 152,060
Claims priority, application Japan, Jan. 18, 1972, 47/46911
Int. Cl. G01k *29/00*
U.S. Cl. 119—1 **2 Claims**



An anus blocking hollow ball insertable through an anus and thereafter inflated for blocking said anus and means extending from said ball for preventing said ball from moving deeper into said anus than desired.

3,739,751
RESTRAINER AND METABOLISM CAGE FOR TEST ANIMALS

Theo Richard Mohr, Max Planck Strasse 13, Leopoldshafen, and Vladimir Volf, Kolbergerstrasse 10c, Karlsruhe, both of Germany

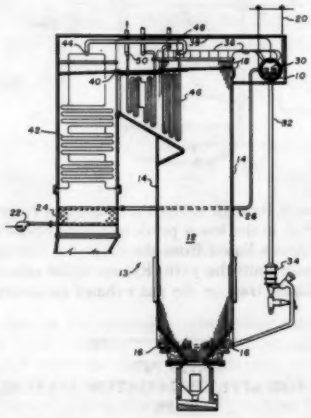
Filed May 3, 1971, Ser. No. 139,668
Claims priority, application Germany, July 8, 1970, P 20 33 717.1
Int. Cl. A61d *3/00*
U.S. Cl. 119—103 **11 Claims**

A cage for restraining an animal, in order to enable collection of the catabolites of the animal, including two sections which are interconnected so as to form a holder having a cylindrical inner cavity, the size of which is adjustable. Both of the sections are made from non-metallic, non-corrosive materials which can be easily decontaminated. The size of the the cavity is adjustable to tightly confine the animal within the space. A rear plate bears against the hind end of the animal and has an opening for the passage of the animal feces, which fall into a beaker located immediately behind the opening. An additional vessel is movable into the cage from underneath the animal in order to be pressed against the animal for the purposes of collecting urine samples.

3,739,752
BOILER DRUM STRUCTURE FOR RAPID TEMPERATURE CHANGES

William Henry Tuppeny, Jr., Rockville, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Aug. 25, 1971, Ser. No. 174,822
Int. Cl. F22b *37/26*
U.S. Cl. 122—235 Z **6 Claims**

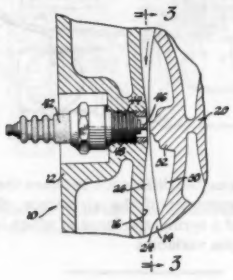


The steam drum of a high pressure steam generating unit, and particularly one subject to frequent thermal cycling, is divided into compartments. Each compartment is, to a large extent, fluidly isolated from the others. Furnace wall steam-water mixture is admitted to an intermediate compartment which is spaced from the inner surface of the drum wall by an annular outer compartment extending about substantially the entire inner circumference of the drum. The majority of the steam-water mixture is conducted, via the intermediate compartment, through steam separators and into an inner compartment. A small part of the mixture may be allowed to pass from the intermediate compartment into the outer compartment and then into the downcomer to avoid the formation of a water level in the outer compartment.

3,739,753
ROTARY COMBUSTION ENGINE IGNITION

Harvey A. Burley, Warren; Carl E. Biell, Birmingham; Edward A. Rishavy, Warren, and James H. Currie, Rochester, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 15, 1971, Ser. No. 134,303
Int. Cl. F02b 53/10; F02p 1/00
U.S. Cl. 123—8.09 1 Claim

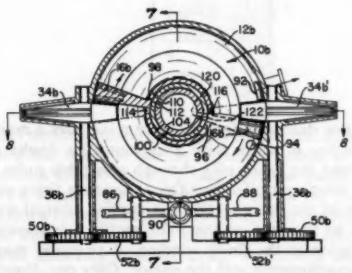


In a preferred embodiment, a rotary combustion engine of the eccentric rotor type includes a housing mounted spark plug which coacts with a plurality of rotor mounted electrodes to provide improved spark ignition for the various combustion chambers of the engine. The rotor mounted electrodes are suitably profiled to optimize the initial spark gap for best spark forming characteristics under various operating conditions.

3,739,754
ROTATING-PISTON TOROIDAL MACHINE WITH ROTATING-DISC ABUTMENT

Ata Nutku, Technical University I.T.U., Gumu Ssugu, Istanbul, Turkey

Filed Dec. 3, 1970, Ser. No. 94,690
Int. Cl. F02b 53/04, 53/06; F01c 1/08
U.S. Cl. 123—8.27 21 Claims

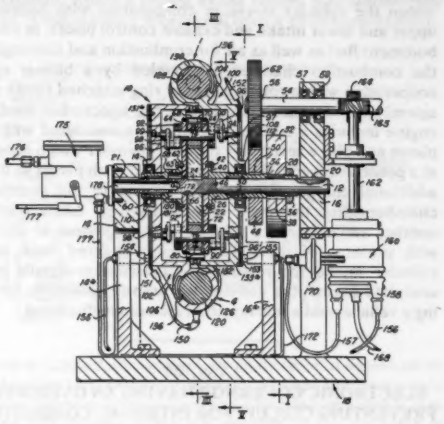


Fluid-handling machines having toroidal chambers and one or more rotating pistons, the chambers being divided into compartments by one or more rotating disc abutments provided with notches for passage of the pistons. Multiple chambers may employ common abutments, and plural abutments may be employed with one or more chambers. Matched chamber, piston, and abutment contours provide high-pressure fluid seals. Central distributor tubes are employed, which may be shifted axially to reverse the direction of rotation of the pistons, and the distributor tube may have a central compression/combustion niche adapted to communicate with the toroidal chamber.

3,739,755
ROTARY ENGINE

Robert H. Folstadt, 639 Treasure, Garland, Tex.

Filed Nov. 13, 1970, Ser. No. 89,184
Int. Cl. F02b 57/00
U.S. Cl. 123—43 B 9 Claims

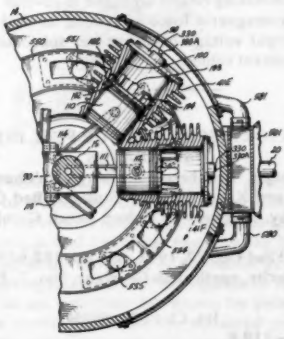


A rotary engine comprising a first group of piston-cylinder elements secured to a first case segment and a second group of piston-cylinder elements secured to a second case segment. The case segments are movably secured together and rotate on sleeves which rotate about a fixed shaft. Each piston of the first group reciprocates in a cylinder of the second group while the case segments rotate about and drive the sleeves. Each case segment is drivingly connected to a planetary gear and moves the planetary gear around a fixed sun gear such that the planetary gear secured to power transmission discs, drivingly connected to the drive shaft of the engine, causes the drive shaft to rotate. Connector links between case segments and the planetary gears are connected to provide a mechanically advantage such that movement of a piston and cylinder in opposite directions relative to each other causes the planetary gear, to which each link is eccentrically connected at diagonally opposed positions, to be moved around the fixed sun gear.

3,739,756
INTERNAL COMBUSTION ENGINE

Tony R. Villella, 4701 Viewdrive, Everett, Wash.

Continuation-in-part of Ser. No. 847,181, Aug. 4, 1969, Pat. No. 3,599,612. This application May 10, 1971, Ser. No. 141,669
Int. Cl. F02b 57/06
U.S. Cl. 123—44 C 15 Claims



This application discloses a novel internal combustion engine incorporating the advantageous features of two cycle and

four cycle engines in a single simplified engine. A stationary vertical crankshaft and a cylinder block disposed for rotation about the crankshaft are disclosed. Cylinder sleeves disposed in the rotatable block assembly include intake and exhaust ports which are substantially diametrically opposed with the valve action being controlled by the position of the piston within the cylinder sleeve in combination with nonrotative upper and lower intake and exhaust control plates. In one embodiment fuel as well as air for combustion and scavenging of the combustion chamber is provided by a blower system cooperating with a rotating blower ring attached to the block assembly. In another embodiment full injection is used. The engine includes a combustion chamber associated with each piston and also a secondary burning chamber which is opened at a predetermined point in the travel of each piston so that an additional charge of oxygen is applied to the combustion chamber after the main combustion has taken place. In another embodiment a tunable exhaust system is disclosed with portions of the exhaust being directed back to the cylinder intake for reburning. Construction details of the complete engine, the novel power transfer assembly for driving a vehicle, and a fuel injection system are disclosed.

3,739,757

ELECTRONIC GOVERNOR HAVING AN OVERSPEED PREVENTING CIRCUIT FOR INTERNAL COMBUSTION ENGINES

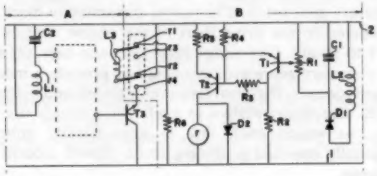
Yoshio Ohtani, Higashi-Matsuyama, and Todomu Kakijima, Iruma-gun, both of Japan, assignors to Diesel Kiki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 1, 1971, Ser. No. 119,635

Claims priority, application Japan, Mar. 6, 1970, 45/21330

Int. Cl. F02b *33/00*; F02d *11/10*; F02b *3/00*

U.S. Cl. 123—102 **1 Claim**



In an electronic governor for internal combustion engines, in which the output voltage of a comparison circuit comparing the output voltage in proportion to the rotative speed of the engine with the output voltage responding to the position of an accelerator lever is conducted to the control coil of a fuel regulating rod in a fuel injection pump, and the position of said fuel regulating rod is electromagnetically controlled by the generated electromagnetic force, there is provided an overspeed preventing circuit arranged to reverse the direction of the electromagnetic force produced in said control coil when the output voltage from another speed sensing circuit exceeds a constant value.

3,739,758

REGULATOR MECHANISM FOR FUEL INJECTION APPARATUS

Heinrich Knapp, Leonberg-Silberberg; Reinhard Schwartz, Stuttgart, and Konrad Eckert, Stuttgart-Bad Cannstatt, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

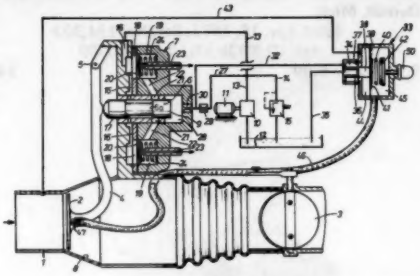
Filed Oct. 27, 1971, Ser. No. 192,849

Claims priority, application Germany, Nov. 7, 1970, P 20 54 911.5

Int. Cl. F02m *69/04*

U.S. Cl. 123—119 R **9 Claims**

In a fuel injection apparatus there is provided an air sensor which, as a function of the intake air quantities flowing through the suction tube causes movement of a fuel metering or control plunger. The return force exerted on the air sensor and opposing the force of the air flow is supplied by fuel pressure that is variable by a valve which is set by the interaction



of the following forces: the difference between the air pressure upstream and downstream of the air sensor, the fuel tank counterpressure and a spring, the force of which is changeable as a function of engine variables.

3,739,759

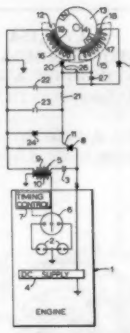
ROTATION SENSING PULSE CONTROL GENERATOR FOR TRIGGERED IGNITION SYSTEMS AND THE LIKE

Richard L. Sleder, Fond du Lac, Wis., assignor to Brunswick Corporation, Chicago, Ill.

Filed Feb. 4, 1972, Ser. No. 223,640

Int. Cl. F02p *1/00*

U.S. Cl. 123—148 E **11 Claims**



A capacitor discharge ignition system includes a main controlled rectifier in series with a capacitor to discharge the capacitor into the spark plug through a suitable pulse transformer. A pilot controlled rectifier connects a firing winding to the gate of the main rectifier. A second control winding, connected to the gate of the pilot rectifier, is mounted in spaced relation to the firing winding. A common magnet is rotated in synchronism with the engine. Only one direction of rotation generates the pulses in proper sequence to the two controlled rectifiers.

3,739,760

ENRICHMENT FUEL-AIR SUPPLY SYSTEM

William W. Charron, Orchard Lake, Mich., assignor to Ford Motor Company, Dearborn, Mich.

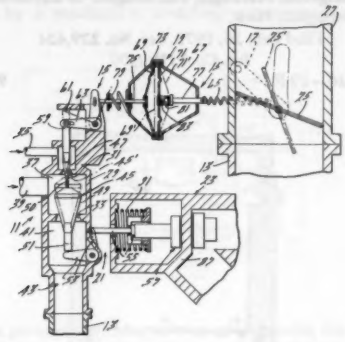
Filed Mar. 29, 1972, Ser. No. 239,063

Int. Cl. F02m *13/04*, *1/10*

U.S. Cl. 123—127 **11 Claims**

An auxiliary fuel-air supply system for an internal combustion engine which supplements the fuel-air supply from the carburetor during engine warmup and acceleration. The

response of the system depends upon the engine coolant temperature and the motion and position of the carburetor throttle plate. A valve governs the flow of this supplemental fuel-air mixture into the intake manifold.



3,739,761

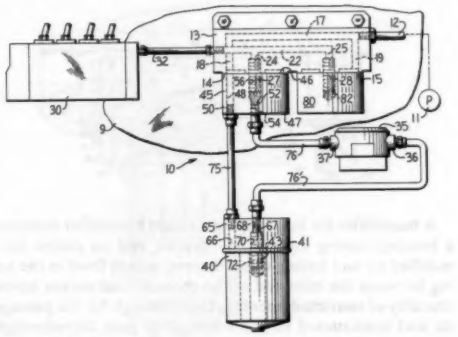
FUEL METER MOUNTING FOR AN ENGINE

Albert B. Niles, Chillicothe, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed July 19, 1971, Ser. No. 163,629

Int. Cl. F02m *59/00*; G01l *3/26*

U.S. Cl. 123—136 **6 Claims**



A fuel meter mounting assembly for the temporary installation of a fuel meter in the fuel injection system of an internal combustion engine having a fuel injection pump, a transfer pump for supplying fuel under pressure to the fuel injection pump and a filter mounting base interposed the transfer pump and the injection pump providing one or more filter mounting locations affording receptacles for selectively mounting the assembly of the present invention to provide a fuel measuring bypass circuit within the fuel injection system.

3,739,762

FUEL INJECTION SYSTEMS

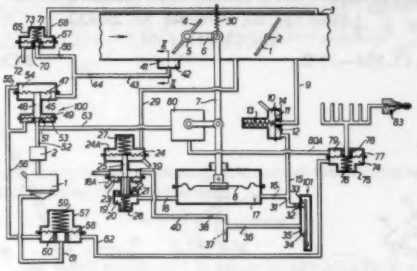
Harold Ernest Jackson, Plympton St. Mary, England, assignor to Petrol Injection Limited, Plymouth, England, a part interest

Continuation of Ser. No. 31,315, April 23, 1970, abandoned. This application Jan. 24, 1972, Ser. No. 220,253

Int. Cl. F02m *69/00*

U.S. Cl. 123—139 BG **28 Claims**

A fuel injection system for an internal combustion engine, including a fuel metering device and/or fuel pressurizing device. The or each device operates in response to adjustment of an air valve located in the engine air intake conduit (for example, upstream of the throttle valve), such adjustment being effected by a control mechanism in the following manner. The air valve produces a control pressure differential in the air intake conduit, which is sensed by the control mechanism. Any change in the pressure differential from a predetermined control value (caused, for example, by an increase in engine air intake) causes the control mechanism to adjust the air pressure in an air pressure control circuit to which the air valve is connected and thereby adjust the position of the air valve to return the control pressure differential to the predetermined control value. Adjustment of the air valve is accompanied by a change in the fuel flow or pressure of fuel flow to the fuel injector devices.



3,739,763

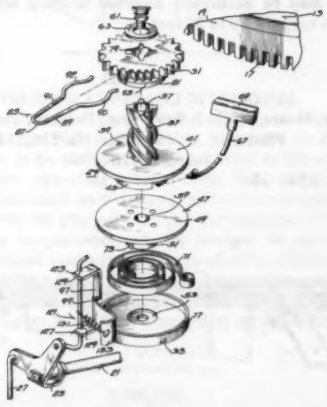
STARTER AND SHIFT INTERLOCK

Robert J. Berry, Waukegan, and Chester G. Dubois, Zion, both of Ill., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed June 24, 1971, Ser. No. 156,227

Int. Cl. F02h *3/00*

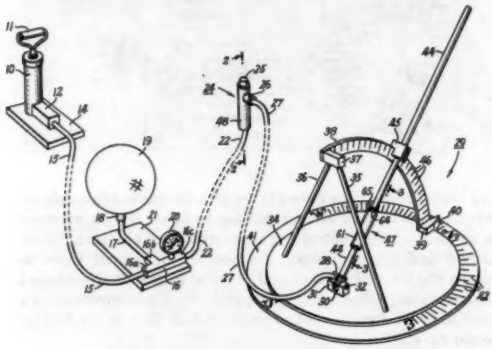
U.S. Cl. 123—179 K **14 Claims**



Disclosed herein is an engine including means mounting a starter gear on a relatively fixed housing for rotary movement and for axial movement relative to a flywheel gear between a retracted position and a position engaging the flywheel gear, means causing axial movement of the starter gear toward the flywheel gear engaging position in response to rotation of the starter gear in one direction, and means for permitting movement of the starter gear from the retracted position to the flywheel gear engaging position in response to starter gear rotation in the one direction when a clutch actuating member is in a neutral position and for preventing movement of the

starter gear from the retracted position toward the flywheel gear engaging position when the clutch actuating member is spaced from the neutral position.

3,739,764
INFLATABLE BALLOON PNEUMATIC PROPULSION DEVICE
Walter F. Allport, 404 Wildwood Road, Stamford, Conn.
Filed Apr. 20, 1970, Ser. No. 29,832
Int. Cl. F41f *1/04*
U.S. Cl. 124—11 R **3 Claims**

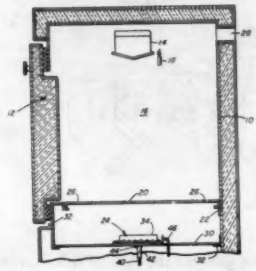


A toy rocket is disclosed in combination with an angularly adjustable cylindrical launch tube connected through a fast opening, normally closed, spring loaded "firing" valve to a source of compressed air contained in an expansible balloon. A check valve is provided for inflating the balloon by operation of a hand pump, and an indicator is provided to show the pressure of accumulated air in the balloon. All parts are fabricated of inexpensive plastic material, except that the balloon may be of rubber. By practice in selecting the amount of air pressure, angle of elevation and azimuth orientation the rocket may be accurately directed to hit a selected target within a range of 10 to 20 feet.

3,739,765
AUTOMATIC LOADING CROSS-BOW
Ralph J. Moore, Route 2, Box 216-F, Houston, Tex.
Filed Apr. 21, 1971, Ser. No. 136,111
Int. Cl. F41b *5/00*
U.S. Cl. 124—25 **2 Claims**

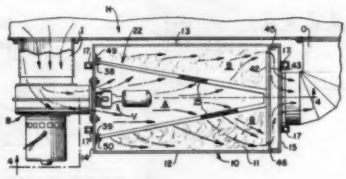
An automatic loading cross-bow comprising a main frame having pivotally mounted bow pieces adjacent its front end with means for latching such bow pieces into extended position for firing and including an arrow clip containing a plurality of arrows adapted to be carried in the main frame. Spring device automatically feeding arrows one at a time into firing position in the main frame as the bow string is cocked including spaced jaws that are opened when the cross-bow is cocked to permit an arrow to be moved from the clip into firing position. A safety release trigger is adapted to be cocked by moving the bow string into firing position and to be fired only when the safety release and trigger are both actuated.

3,739,766
FUEL BURNER STRUCTURE
Peter L. Helgeson, Macungie, Pa., assignor to Raytheon Company, Lexington, Mass.
Filed Feb. 25, 1972, Ser. No. 229,424
Int. Cl. A21b *1/00*
U.S. Cl. 126—19 R **9 Claims**



An oven having a fuel burner which achieves space-saving and economy by combining the burner body with a floor shield.

3,739,767
HUMIDIFIER
William H. Peters, 304 E. Wabash Street, Montpelier, Ohio
Filed Jan. 19, 1972, Ser. No. 218,921
Int. Cl. F24f *3/14*
U.S. Cl. 126—113 **13 Claims**

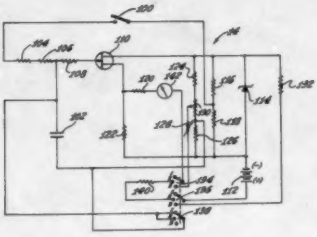


A humidifier for humidifying air, said humidifier comprising a housing having an inlet for dry air and an outlet for humidified air and having water therein, means fixed in the housing between the inlet and outlet thereof, said means having a plurality of restricted openings therethrough for the passage of air and constructed to allow the air to pass therethrough in contact with the water resulting in turbulence of the water and humification of the air.

3,739,768
REFLEX METER
Harold F. Rieth, 2217 Harbor, Apt. C6, Costa Mesa, Calif.
Filed Dec. 30, 1968, Ser. No. 787,959
Int. Cl. A61b *5/10*
U.S. Cl. 128—2 **10 Claims**

The present invention relates to a reflex meter for measuring the time duration of a reflex response, such as an Achilles tendon reaction of a patient. The reflex meter of the present invention automatically provides for the measurement of the time period from the start of the reflex reaction, which is the initial muscle contraction, through the contraction of the muscle to a maximum and until the muscle has relaxed to one-half of its peak contraction. The present invention provides such a time duration measurement automatically using a switch to control the charging of a capacitor and with the capacitor charging for as long as the switch is closed. The level to which the capacitor is charged is measured to provide an output indication of time. The switch is automatically con-

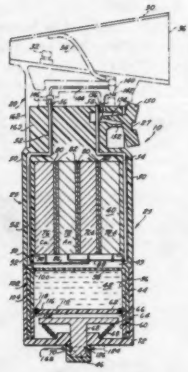
trolled to close at the beginning of the muscle contraction and to open when the muscle has relaxed to one-half of its peak contraction. The controlling of the switch may be accomplished by a mechanical switching arrangement which includes a pivoted switching arm so as to provide for the automatic closing and opening of the switch at the proper times. The controlling of the switching may also be accomplished by an electronic switching arrangement to provide for the automatic closing and opening of the switch at the proper times.



3,739,769
POWER HANDLE

Gordon E. Kaye, Garrison, N.Y., assignor to P.R. Mallory & Co., Inc., Indianapolis, Ind.

Filed Oct. 23, 1970, Ser. No. 83,422
Int. Cl. A61b *1/06*, *1/09*; H01m *17/06*
U.S. Cl. 128—6 12 Claims



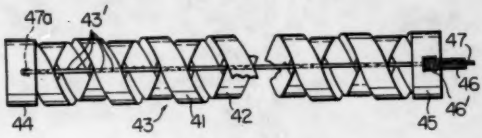
A portable diagnostic medical tool with probe structure, to receive a detachable hollow handle containing a reserve type cell, normally inactive but manually convertible to active condition as an operating cell, with the hollow handle and cell made as an inexpensive discardable unit when the cell energy is used up.

3,739,770
BENDABLE TUBE OF AN ENDOSCOPE

Toshiyuki Mori, Minamitama-gun, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Oct. 6, 1971, Ser. No. 186,979
Claims priority, application Japan, Oct. 9, 1970, 45/100982
Int. Cl. A61b *1/00*; F16l *11/08*
U.S. Cl. 128—6 3 Claims

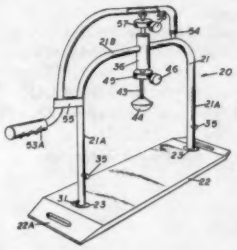
A bendable tube portion in an endoscope comprises two helically wound metal strips, one of which closely surrounds the other. The strips are wound in opposite directions and the turns of one strip are secured to corresponding turns of the other strip in the plane of bending motion of the tube portion. The tube portion may be bent by at least one string extending through the tube and connected to a control mechanism in the control housing of the endoscope.



3,739,771
EXTERNAL HEART MASSAGE APPARATUS

George E. Gaquer, 22 Taber Place, Nutley, N.J.; John G. Gaquer, 14 Bromley Place, Bloomfield, N.J., and Alphonse Nagourney, 334 Unity Road, Trumbull, Conn.

Filed Dec. 29, 1971, Ser. No. 213,313
Int. Cl. A61h *7/00*
U.S. Cl. 128—51 28 Claims



An external heart massage apparatus having of a generally U-shaped frame which is detachably connected to either a base member or by means of adaptor clamps to the side rails of a stretcher, operating table, or the like. A plunger is reciprocally mounted on the frame, and a lever is operatively associated with the plunger whereby the displacement of the lever effects reciprocation of the plunger to impart the requisite external massage on the heart of a patient. Axial transmission of the force between the lever and the plunger is attained by a rolling type cam which is connected to the upper end of the plunger so as to be disposed in rolling engagement with the lever.

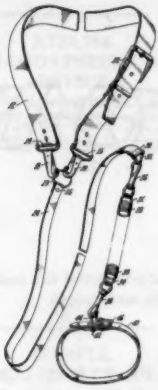
3,739,772
RESILIENT HARNESS DEVICE FOR A WALKING CAST

Warren H. Ennis, 6526 Alcone Avenue, North Hollywood, Calif.

Filed Feb. 7, 1972, Ser. No. 223,960
Int. Cl. A61f *3/00*
U.S. Cl. 128—80 G 9 Claims

A shoulder supported, resilient harness device for use with a walking cast to facilitate movement and reduce fatigue of the injured leg incorporates, in linked sequence, a shoulder strap, a lead strap, a resilient member and a foot band. The resilient member is, preferably, a pull spring having a pull tension corresponding to at least about the weight of the cast. The

shoulder strap and foot band are, preferably, adjustable with respect to length and the means linking the resilient member



to the lead strap and the foot band include, preferably, swivel-type connectors.

3,739,773

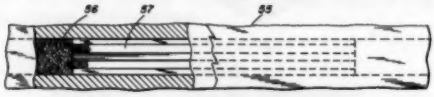
POLYGLYCOLIC ACID PROSTHETIC DEVICES

Edard Emil Schmitt, Norwalk, Conn., and Rocco Albert Polistina, Port Chester, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 852,617, Aug. 25, 1969, Pat. No. 3,620,218, which is a continuation-in-part of Ser. No. 608,086, Jan. 9, 1967, Pat. No. 3,463,158, which is a continuation-in-part of Ser. No. 320,543, Oct. 31, 1963, Pat. No. 3,297,033. This application June 28, 1971, Ser. No. 157,521

Int. Cl. A61f *05/04*

U.S. Cl. 128—92 BC **5 Claims**



Polyhydroxyacetic ester, also called polyglycolic acid (P-GA), has surgically useful mechanical properties as a solid prosthesis, such as reinforcing pins, screws, plates, or thin sheets. On implantation, in living mammalian tissue, the polyglycolic acid is absorbed, and replaced by living tissue. The polyglycolic acid as a gauze, felt or velour protects a wound surface, such as a burn, traumatic injury, or surgical incision, and may be left at least partially embedded, as in a scab, with the part below the healed tissue surface being absorbed, and that above the tissue surface dropping off with the scab, or be completely embedded.

3,739,774

RESPIRATORS

John Gregory, Marlow, England, assignor to M.L. Aviation Company Limited, Slough, Buckinghamshire, England

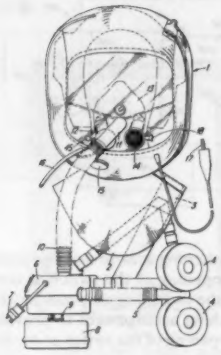
Filed May 10, 1971, Ser. No. 141,723

Claims priority, application Great Britain, May 21, 1970, 24,714/70; Oct. 9, 1970, 48,184/70

Int. Cl. A62b *17/04*

U.S. Cl. 128—142.7 **6 Claims**

A respirator for use in noxious atmospheres comprises a hood which completely covers the head of the wearer and the edge of which extends around his neck or shoulders and a mechanical blower is fitted to the inlet connection so as to provide more air than required for respiration to provide a positive internal pressure. The respirator may also serve as an oxygen mask for use at high altitudes by airmen and preferably includes a separate oro-nasal mask in which case the inlet has



two branches, one passing to the mask by way of a non-return valve and the other passing to the interior of the hood also through a non-return valve. When oxygen is being supplied a valve operates to prevent the flow of air from the blower to the mask.

3,739,775

PNEUMATIC PRESSURE TYPE RESPIRATOR

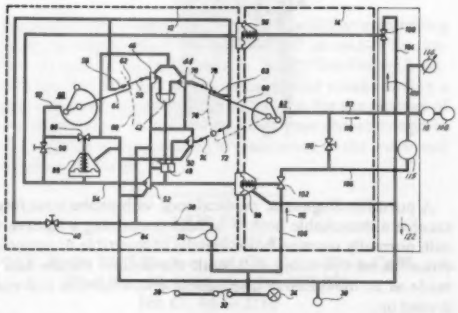
Laszlo Helm; Gyorgy Kosa, and Attila Szucs, all of Budapest, Hungary, assignors to Medicor Muvek, Budapest, Hungary

Filed May 17, 1971, Ser. No. 144,052

Claims priority, application Hungary, May 18, 1970, ME1224

Int. Cl. A62b *7/00*

U.S. Cl. 128—145.8 **1 Claim**



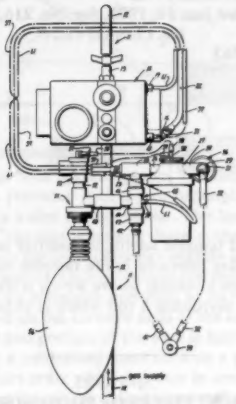
Pneumatic pressure type respirators are built up of purely pneumatic means which, however, interact between control and actuator means of the device. Thereby the pressure signals themselves influence also directly the flow of work medium. To obviate this, the invention employs independent pressure lines for both the control and the actuator means between a pressurised gas source and the ambient atmosphere while both means are mechanically interconnected by at least one pneumatic valve and by at least one manometer operated swith means. Such arrangement ensures that the flow of the work medium is influenced by pressure signals only, through the mechanical interconnection.

3,739,776

FAIL-SAFE BREATHING CIRCUIT AND VALVE ASSEMBLY FOR USE THEREWITH

Forrest M. Bird, 212 North West Cerritus, and Henry L. Pohndorf, Mark 7, both of Palm Springs, Calif.

Filed Sept. 27, 1971, Ser. No. 183,822
Int. Cl. A62b 7/00
U.S. Cl. 128—145.8 10 Claims



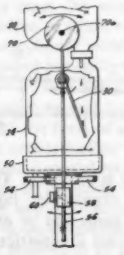
Breathing circuit for use in supplying gas under pressure to the airway of a patient having a control with an inspiratory and expiratory phase for controlling the supply of gas. Means is provided for supplying the gas to the patient to ventilate the patient. An exhalation valve which is controlled by the controller controls the flow of expiratory gases from the patient. Manual means is provided for ventilating the patient in the event of failure of the controller. A first valve assembly having an inspiratory one-way valve and an expiratory one-way valve is provided for maintaining the inspiratory and expiratory gases separate. The first valve assembly is coupled to a second valve assembly which is coupled to the exhalation valve assembly. A resuscitation bulb is coupled to the second valve assembly and is utilized for supplying gas under pressure through the second valve assembly and through the inspiratory one-way check valve to the airway of the patient.

3,739,777

INTRAVENOUS FEEDING APPARATUS AND SYSTEM

David Paul Gregg, Calle Iturbe, 12, Madrid 2, Spain

Filed May 10, 1971, Ser. No. 141,662
Int. Cl. A61m 05/16
U.S. Cl. 128—214 E 4 Claims



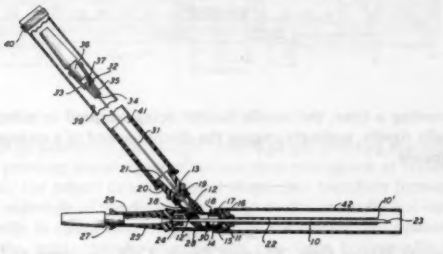
Improved intravenous feeding apparatus and system is provided which includes a simple mechanism for producing a readily discernible indication should the flow of intravenous solution into the vein of a patient be interrupted for any reason. The apparatus includes a flipper member which is mounted in a receptacle through which the intravenous solution passes as a series of drops. The flipper is caused to move back and forth about a pivotal axis so long as the solution passes through the receptacle at a predetermined rate, and it stops when the rate increases or decreases from a preestablished value.

3,739,778

CATHETER INTRODUCTION SYSTEM

Martin Monestere, Jr., Lebanon, and Frederick Prunier, West Orange, both of N.J., assignors to C. R. Bard, Inc., Murray Hill, N.J.

Filed Aug. 12, 1971, Ser. No. 171,156
Int. Cl. A61m 5/00
U.S. Cl. 128—214.4 8 Claims



A needle and catheter combination for intravenous or supra-pubic use wherein a plastic catheter is mounted on a connector assembly including a first hub which is connected to a second hub by means of a short rubber tube adapted to be bent laterally and to be resealably punctured by a needle (having a hub and a plug) which extends initially through the first hub and catheter with its point projecting from the distal end of the latter. After introduction (e.g. venipuncture) the needle is withdrawn leaving the catheter in the vein or other body cavity; the needle hole through the side of the rubber tube closes and the second hub may then serve as an adapter for connection to an infusion set or drainage receptacle, or an elongated second catheter with adapter may be introduced through the connector assembly and catheter. When the second catheter is used the first catheter may be left in place or may be withdrawn to leave only the second catheter in the vein or other cavity. The needle hub may be opened by removing the plug to permit observation of flashback, and the needle may have a lteral opening in register, initially, with the lumen of the rubber tube to permit injection of liquid immediately upon venipuncture, before removal of the needle.

3,739,779

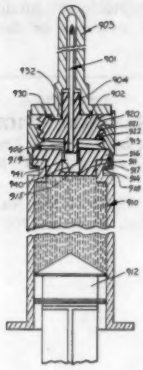
HYPODERMIC SYRINGE AND NEEDLE CONSTRUCTION

Frederick W. Pfleger, Cherry Hill, N.J., assignor to Medical Electroscience & Pharmaceuticals, Inc., Cherry Hill, N.J.

Filed Apr. 28, 1970, Ser. No. 32,547
Int. Cl. A61m 5/00
U.S. Cl. 128—218 DA 5 Claims

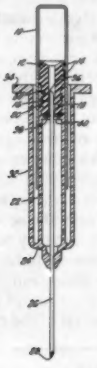
A hypodermic syringe and needle construction comprising threaded actuating means mounted on the end of a syringe ampule and adapted to provide a mechanical advantage for piercing a needle and needle holder unit through a piercable end closure. In another facet of the invention, a ball-type closure is provided in a disposable ampule unit, the unit including threaded actuating means on the distal end of the ampule for moving the needle holder to dislodge the ball in the closure and permit fluid communication between the contents of the ampule and the lumen of the needle. A non-coring, discrete needle and holder construction, adapted to be stored as a separate unit from a syringe or ampule, has a hypodermic needle provided with solid piercing means extending beyond the lumen of the needle for initially piercing the end closure of an

ampule without producing a coring action, facilitating passage of the lumen of the needle through the pierced closure without



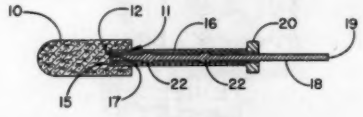
creating a core, the needle holder being adapted to substantially rigidly, sealingly engage the discharge end of a syringe or ampule.

3,739,780
SAF-T-JET
Robert Walter Ogle, Newport Beach, Calif., assignor to IMS Limited, South El Monte, Calif.
Filed Feb. 7, 1972, Ser. No. 223,930
Int. Cl. A61m *5/00, 5/18*
U.S. Cl. 128—220 **9 Claims**



This patent describes a medicament injector comprising a cylindrical vial having an open end and a closed end, a resilient plug inserted at least partially through said open end engaging the walls of said vial with a press fit, a cylindrical member having one closed end and a needle extending outwardly from said cylindrical member with a sharpened end point, a thin long fluid passage communicating with said needle and extending inwardly into said cylindrical member with a sharpened inner end terminating within the walls of said cylindrical member, lateral support means between said walls of said cylindrical member and said thin long fluid passage in proximity to said sharpened inner end to maintain said passage essentially concentric with respect to said cylindrical member, cooperating threaded interlocking means on said cylindrical member and said plug, whereby upon interlocking the said plug with the said cylindrical member said vial is first held in an assembled but non-operating position and upon further interlocking of said plug with said cylindrical member said plug is pierced by said elongated fluid passage and said passage communicates with said vial and said plug is locked securely to said cylindrical member to permit aspiration upon withdrawal of said vial to permit expulsion of the contents of said vial upon exertion of pressure on said vial.

3,739,781
TAMPON INSERTER ARRANGEMENT
Harish A. Patel, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed Jan. 10, 1972, Ser. No. 216,664
Int. Cl. A61f *13/20*
U.S. Cl. 128—263 **5 Claims**



An absorbent tampon having an inserter means removably seated in a socket provided in the tampon base. The inserter means comprises a tubular sleeve which is frictionally held in the socket and surrounds a rod which is slidably disposed inside the sleeve.

3,739,782
ABSORBENT FIBERS OF PHOSPHORYLATED CELLULOSE WITH ION EXCHANGE PROPERTIES AND CATAMENIAL TAMPONS MADE THEREFROM
Leo J. Bernardin, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Division of Ser. No. 34,878, May 5, 1970, Pat. No. 3,691,154. This application Nov. 1, 1971, Ser. No. 194,748
Int. Cl. A61f *13/20*
U.S. Cl. 128—285 **3 Claims**

Absorbent dressings, such as tampons, made from highly absorbent cellulose fibers with ion exchange properties. These fibers are obtained by phosphorylating cellulose fibers, hydrolyzing the fiber walls with acid, converting the phosphorylated fibers to the sodium salt form, mechanically refining these fibers to rupture the primary fiber wall and permit subsequent swelling or ballooning, acidifying the refined fibers to reconvert the phosphorylated cellulose into the acid form, and drying the fibers in a manner to substantially avoid appreciable hydrogen bonding.

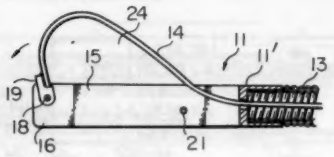
3,739,783
MALE URINAL DEVICE
Arthur B. Broerman, 5901 Baylor, Bartlesville, Okla.
Continuation-in-part of Ser. No. 8,819, Feb. 5, 1970, Pat. No. 3,608,552. This application Sept. 24, 1971, Ser. No. 183,589
Int. Cl. A61f *5/44*
U.S. Cl. 128—295 **4 Claims**

A male urinal device is provided. The device comprises a fabric base, tubular, expansible, liquid-conveying sheath adapted to receive the penis and be affixed thereto in fluid-tight relation, and includes a constricted downstream outlet section which is pivotally flexible at the point of constriction of the sheath by the action of an internal twist of the reinforcing fibrous tube. A fluid coupling member is contained within the outlet section. The fiber sheath is preferably impregnated with a silicone rubber, and in one embodiment of the invention is attached to the body with silicone resin adhesive.

3,739,784
SURGICAL INSTRUMENT

Mitsuto Itoh, Hachioji-shi, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Dec. 1, 1971, Ser. No. 203,633
Int. Cl. A61b *1/06, 17/00, 1/72*
U.S. Cl. 128—320 6 Claims

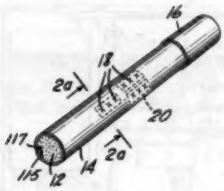


Forceps for use with an endoscope. The distal end portion of the forceps is provided with a pair of longitudinal parallel legs separated by a slot therebetween. The longitudinal edge of at least one of the legs is made a sharp cutting edge and the front end of a wire having a diameter slightly smaller than the width of the slot and extending through the flexible tube of the forceps so as to be manually operated at its rearward end is pivotally mounted on the forward ends of the legs in the slot so that the forward end portion of the wire is bent to form a loop so as to capture a projecting mass such as a polyp when the wire is pushed forwardly while the wire is tensioned to move into the slot when the wire is pulled rearwardly, thereby severing the captured projecting mass by the cooperation of the wire with the cutting edge of the leg.

3,739,785
CIGARETTE WITH COATED WRAPPER VENTILATION FLAPS

William K. Stephens, Jr., Mechanicsville, Va., assignor to Philip Morris Incorporated, New York, N.Y.

Filed May 3, 1972, Ser. No. 250,064
Int. Cl. A24d *01/00*
U.S. Cl. 131—9 13 Claims

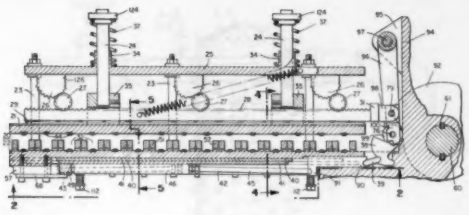


A ventilated cigarette employing one or more flaps defined by slit patterns in the wrapper thereof and which flaps are adapted to move away from the wrapper encircling course when the cigarette is puffed to admit ventilating or diluting air streams to the tobacco cylinder which is made with the slit pattern fashioned to extend generally transverse of the article longitudinal axis to provide flap movement about a hinge line disposed generally parallel to said longitudinal axis. The slit pattern can be made the the form of an X, a V or other suitable configuration. The article further has a coating of an air-impervious normally rigid material on either the inner or outer surface of the wrapper in covering and encircling expanse about each slit pattern and associated flap to normally constrain or hold the flap in the encircling wrapper course. When the cigarette has been smoked to an extent that ventilation is advantageous or desirable, the material responsive to the presence of heat from warm smoke and the burning coal or to the ingredients of tobacco smoke becomes softened and constraint on the flap is released to permit the circular tension in the wrapper to cause the flap to move away from the wrapper encircling course and admit ventilation air.

3,739,786
CIGAR PRESS

Dale R. Smith, York, Pa., assignor to York Research & Development Corp., Red Lion, Pa.

Continuation-in-part of Ser. No. 96,020, Dec. 8, 1970. This application Aug. 4, 1971, Ser. No. 168,939
Int. Cl. A24c *01/18*
U.S. Cl. 131—86 11 Claims

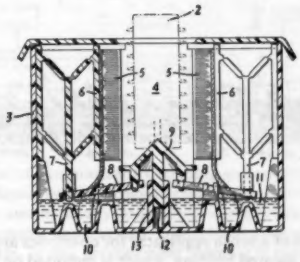


In an automatic turret-type indexing cigar pressing machine for pressing round cigars of various sizes into square or rectangular (or other) cross-sectional shape, jaw members forming the sidewalls of the die cavities are movable inwardly and outwardly in operational relationship to the closing and opening of the press, thereby to compress the cigars horizontally as well as vertically. The sidewall jaw members are spring loaded vertically and are movable downwardly when the press closes to lessen the shock on the cigars.

3,739,787
HAIRSETTING APPARATUS HAVING APPLICATOR MEANS FOR MOISTENING THE SURFACE OF THE HAIR ROLLER

Erik Keldmann, Jerslev, and Bent G. Johansen, Kalundborg, both of Denmark, assignors to Bristol-Myers Company, New York, N.Y.

Filed Sept. 3, 1971, Ser. No. 177,767
Claims priority, application Denmark, Sept. 9, 1970, 4641/70
Int. Cl. A45d *2/02*
U.S. Cl. 132—9 4 Claims



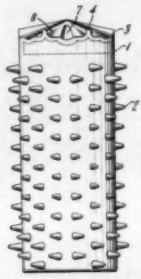
A hairsetter having hair rollers heated by support pins on which the hair rollers are mounted, is provided. The hairsetter has a moistening chamber in which one or more rollers can be positioned after they are heated. The moistening chamber has an applicator means such as brushes which receive liquid from a reservoir. When a roller is placed in the moistening chamber, the applicator is activated to deposit the hair treatment liquid in a thin coating on the surface of the hair roller.

3,739,788

HAIR CURLERS

Erik Keldmann, Jerslevsj, Denmark, assignor to Bristol-Myers Company, New York, N.Y.

Filed Aug. 17, 1971, Ser. No. 172,542
Claims priority, application Denmark, Aug. 17, 1970, 4211/70
Int. Cl. A45d 2/12
U.S. Cl. 132—33 R 9 Claims



A heatable hair curler for use in vapor type heating systems which condense liquid droplets on the hair curler by directing the liquid droplets toward an end of the hair curler, the hair curler having a hollow cylindrical body terminating at a closed end and a heat storage cartridge disposed within the cylindrical body. The closed end of the hair curler receives the liquid droplets and has an outer surface with a bulging or protruding configuration, such as that of a dome or cone, and guide channels formed in the surface to direct liquid droplets to the peripheral edge of the closed end and distribute the liquid over the cylindrical body of the hair curler, the guide channels being defined by ribs extending from the surface and/or grooves in the surface.

3,739,789

BRUSH APPLICATOR

Ralph J. Cataneo, Brooklyn, N.Y., and Eustace Fotiu, Mahwah, N.J., assignors to Pfizer Inc., New York, N.Y.

Filed June 12, 1972, Ser. No. 262,118
Int. Cl. A45d 40/26
U.S. Cl. 132—88.7 18 Claims

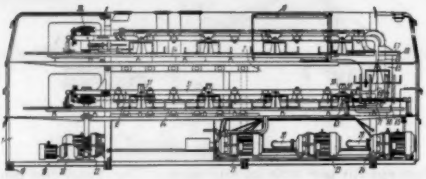
The bristles of a brush applicator for cosmetics are mounted in a centrally located bushing, which is mounted on radial ribs at the outlet from the barrel. The paste to be applied is forced by a lead screw and piston through the ribs into an ample annular space between a surrounding ferrule and the outside of the bushing. A shoulder on the ferrule compresses the tips of the bushing ribs against the outlet, and its outlet nozzle closely engages the bristles and directs the paste into their tip end. The lead screw is rotated by a knob secured to its rear end, which is snapped into the back end of the casing, to advance an octagon shaped piston through a correspondingly shaped barrel.

3,739,790

APPARATUS FOR WASHING CONTAINERS

Nikolai Martynovich Gudz, Ulitsa Srendyaya, 6, and Eduard Kazimirovich Adutskevich, Bulvor Rokossorskogo 97, both of Minsk, U.S.S.R.

Filed Jan. 4, 1972, Ser. No. 215,349
Int. Cl. B08b 3/02, 9/08
U.S. Cl. 134—60 9 Claims



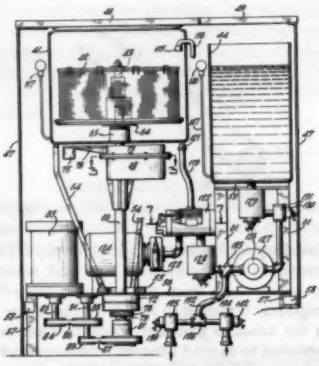
The internal space of the apparatus is divided by means of a vertical partition wall into two longitudinally extending portions. These portions are divided by means of trays into stages which constitute treatment stations. A conveyor closed in space extends through all treatment stations and comprises a guide, carriages and driving mechanism. Said driving mechanism and the guide, along which the carriages with carriers for containers are moved, extend through all the treatment stations moving around the vertical partition wall in a horizontal plane and passing vertically from one stage into another.

3,739,791

DECONTAMINATION APPARATUS

Jack E. Fry, Dallas; Joseph C. Gerard, Arlington; Chester C. Hickman, and John E. Hummel, both of Dallas, all of Tex., assignors to Arbrook, Inc., Arlington, Tex.

Filed June 24, 1970, Ser. No. 49,407
Int. Cl. B08b 3/06, 9/00, 11/02
U.S. Cl. 134—157 6 Claims



A closed system, i.e., apparatus for automatically decontaminating various articles, including hollow bags and tubing, by washing and disinfecting them with a liquid chemical disinfectant, using the same tub for both washing and disinfection. The articles are automatically agitated in the washing and disinfecting liquids to loosen dirt and assure complete wetting of their inside and outside surface by the disinfectant. Containers are provided for mounting the hollow articles for agitation and spinning from the same shaft, preferably in baskets provided for this purpose, and for holding them in positions which will assure their thorough washing, disinfecting and emptying. A unique storage and transfer system is employed for the disinfectant supply and this includes a novel diverter or transfer

valve for connecting to the tub drainage system. The apparatus preferably uses a disinfectant supply which has a relatively long life and is used over and over again in successive decontaminating cycles and has a use cycle timing device for rendering the apparatus inoperative at the end of a given use cycle for the disinfectant. A device is provided for again rendering the apparatus operative after a new supply of disinfectant is substituted for the old. Various other timing and control features are provided.

3,739,792

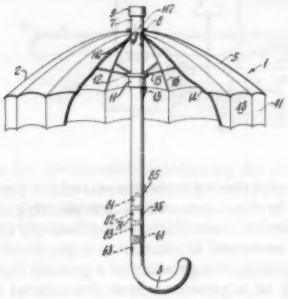
UMBRELLA WITH HEAT GENERATING MEANS

Joan Holland, 157 East 57th Street, New York, N.Y.

Filed July 14, 1971, Ser. No. 162,514

Int. Cl. A45b *25/00*

U.S. Cl. 135—16 **11 Claims**



An umbrella with a heat generating means, such as electric heating elements located in the ribs of the umbrella framework. The heating elements heat the volume of air present under the umbrella canopy. The power source may be incorporated in the umbrella or may be external. In addition, heated air may be drawn through an opening in the bottom and ejected through an opening in the upper end of a hollow vertical column supporting the umbrella's ribbed frame work and including heat generating means in the column.

3,739,793

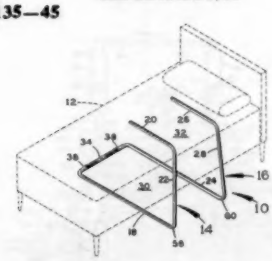
AID FOR USE IN SITTING DOWN OR STANDING UP

Allen B. Wilson, 2920 N.E. 19th St., Pompano Beach, Fla.

Filed Jan. 19, 1972, Ser. No. 219,044

Int. Cl. A45b *1/00*

U.S. Cl. 135—45 **3 Claims**



An aid for use by a crippled person in sitting down and standing up. In a preferred embodiment, the aid has generally J-shaped legs on opposite side thereof, each including an upper branch and a lower branch. The lower branches are connected together by connecting means which may be located in different places relative to the lower branches. The aid is particularly useful in assisting a crippled person in sitting down on a bed or standing up from a seated position on a bed, but the aid can be used for assistance in sitting down and standing up relative to articles other than beds. By using the aid, a person need not call a nurse or attendant to help him.

3,739,794

METHOD AND APPARATUS FOR CONTINUOUSLY PREPARING A GEL

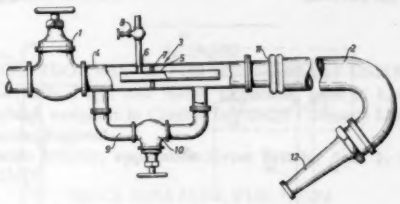
Mats E. G. Lindgren, Trangsund, Sweden, assignor to Gelco-Project Lindgren & Co., Handelsbolag, Stockholm, Sweden

Filed Sept. 10, 1971, Ser. No. 179,507

Claims priority, application Sweden, Sept. 14, 1971, 12466/71

Int. Cl. A62c *5/16*

U.S. Cl. 137—1 **6 Claims**



Method for continuously preparing a gel in which a liquid is mixed with a gelling agent in a hose or other conduit which serves to deliver the gel to the site at which it is used. The liquid and the gelling agent are supplied to the conduit in the proper proportions so that the gel is formed or completed approximate the output end of the conduit. The invention also includes apparatus for carrying out the specified method.

3,739,795

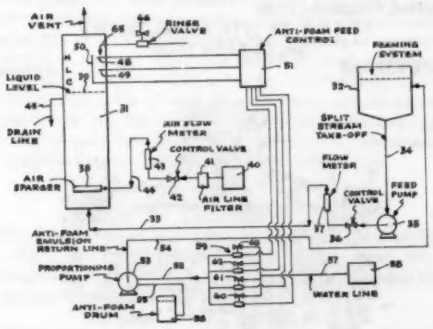
METHOD AND APPARATUS FOR DETECTING AND CONTROLLING FOAMABILITY OF A LIQUID SYSTEM

James A. Hyde, Downers Grove, and Roger W. Youngs, Hinsdale, both of Ill., assignors to Nalco Chemical Company, Chicago, Ill.

Filed July 19, 1971, Ser. No. 163,714

Int. Cl. B01d *19/04*

U.S. Cl. 137—5 **6 Claims**



A method of automatically detecting and controlling foamability of a liquid system, wherein conductivity probes measure foaming to automatically control the introduction of antifoam into the system, and thereby control the foamability of the liquid system. In one arrangement foaming is measured externally by feeding a split stream from the system to a vessel where foaming is synthetically generated. In another arrangement, foaming is measured directly. Apparatus for carrying out the method where foaming is generated externally includes a vessel having means for synthetically causing foaming of the liquid to simulate the foaming normally encountered in the system. A split stream is suitably taken from the system and delivered to the vessel. The foamability of the liquid is then measured in the vessel to control means for feeding a given dosage of antifoam to the liquid system, and thereby control the foamability of the system. The magnitude of foam-

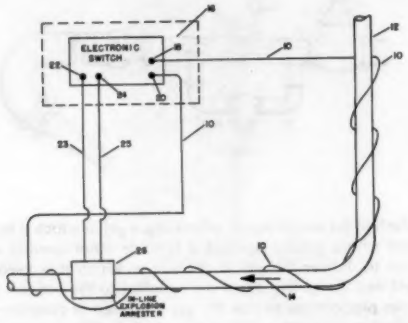
ing is measured electrically to produce a signal for driving an antifoam feed control.

3,739,796

IN-LINE EXPLOSION ARRESTER

Louis Jablansky, Fair Lawn, N.Y., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 3, 1971, Ser. No. 139,337
Int. Cl. F16k *3/00, 17/36*
U.S. Cl. 137—68 **4 Claims**



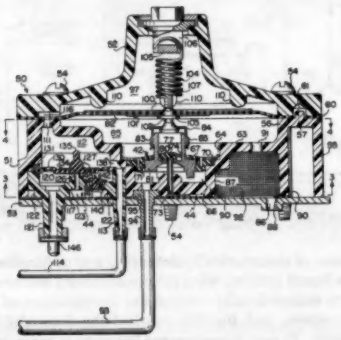
This invention relates to a system for detecting an explosion in a pipeline carrying molten explosive material and halting the spread thereof by blocking the propagation of the detonating wave by a detonation arresting means that is electrically activated by an electronic switch which is sensitive to the initial detonation.

3,739,797

CONTROL APPARATUS FOR EXHAUST GAS RECIRCULATING SYSTEM

Roland B. Caldwell, Columbus, Ohio, assignor to Ranco Incorporated, Columbus, Ohio

Filed Nov. 29, 1971, Ser. No. 202,783
Int. Cl. F02m *25/06*
U.S. Cl. 137—85 **6 Claims**



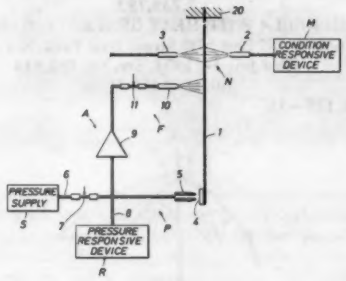
Control apparatus for regulating the vacuum applied to control an exhaust gas recycling valve of an internal combustion engine comprises a body forming the housing for a vacuum regulator, a vacuum reservoir, a check valve between the reservoir and intake manifold connection of the engine and a relief valve for the reservoir. The construction of the body provides internal connections between the vacuum regulator, reservoir and the check and relief valves and provides readily accessible external vacuum connections to the venturi, intake manifold and recirculating valve.

3,739,798

FLUIDIC/PNEUMATIC DEVICES USING EQUILIBRIUM OF FORCES

Robert Eugene Raymond Ducousset, Clamart, Hauts-de-Seine, France, assignor to Compagnie Des Compteurs, Paris, France

Filed Feb. 18, 1971, Ser. No. 116,354
Claims priority, application France, Feb. 27, 1970, 7007134
Int. Cl. G05d *16/00*
U.S. Cl. 137—85 **11 Claims**



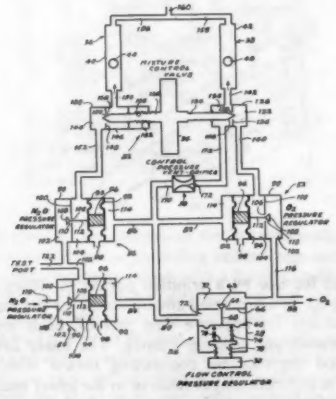
In the several preferred embodiments of the present invention disclosed herein, a pneumatic controller is provided with a depending flexible vane which is cooperatively arranged and positioned to be moved in relation to a gas-bleed orifice for selectively regulating the pressure of a gaseous control media being supplied to a pressure-responsive control device. To control the movements of the vane, a variable force is applied to the vane to selectively deflect it in response to variations of a measured condition. Proportional feedback is provided in a unique fashion by supplying the regulated gas to one or more nozzles which are arranged to jet gas against the vane for reestablishing the equilibrium of the vane in accordance with the regulated gas pressure.

3,739,799

CONTINUOUS FLOW ANESTHESIA APPARATUS

Allan M. Bickford, East Aurora, and Ronald J. Czajka, Alden, both of N.Y., assignors to Fraser Sweatman, Inc., Lancaster, N.Y.

Filed Sept. 7, 1971, Ser. No. 178,114
Int. Cl. G05d *11/03*
U.S. Cl. 137—88 **12 Claims**



A gas flow control system for anesthesia apparatus including a mixture control valve operable to vary the relative proportions of two gaseous components without affecting the

total flow rate thereof and a control for varying the total flow rate of these components without varying the relative proportions thereof. Flow meters are utilized to visually confirm the accuracy of the mixture control valve.

3,739,800

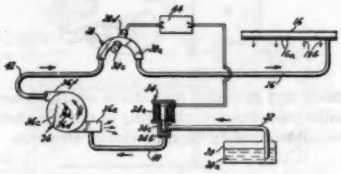
TONER SUPPLY SYSTEM FOR COPYING MACHINE

Toruli F. Aasen, Hollywood; Bernard Mogil, Hallendale, and Martin Schaffel, Miami, all of Fla., assignors to Copystatics Manufacturing Corporation, Miami Lakes, Fla.

Filed May 4, 1971, Ser. No. 140,051

Int. Cl. G05d *11/08*

U.S. Cl. 137—93 **10 Claims**



A system for continuously monitoring the concentration of toner in an electrostatic copying machine. The need for additional toner concentrate is detected by a photocell which receives varying amounts of light transmitted through a transparent monitoring tube positioned in the toner solution circulation path. If the toner solution has become too dilute, the photocell's resistance lowers to permit a periodically generated enabling pulse from the electronic control circuit to furnish an operating path for a positive-acting solenoid valve. Short timed bursts of toner concentrate are then added to the toner solution at spaced time intervals unitl the concentration exceeds a predetermined value; the concentrate is injected into the solution by an immersed venturi tube arrangement. A manual operating mode is also included for providing an instantaneous burst of toner concentrate independent of the detection circuitry.

3,739,801

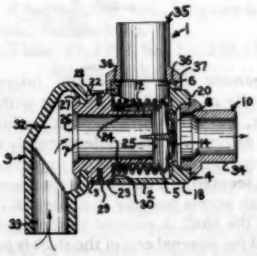
LOW ACTUATING PRESSURE TYPE VALVE STRUCTURE

Hans Rudolph, 7200 Wyandotte Road, Kansas City, Mo.

Filed Dec. 6, 1971, Ser. No. 204,947

Int. Cl. G05d *7/00*

U.S. Cl. 137—102 **4 Claims**



A housing with flow passages and valve members actuated by low pressure is particularly adapted for respirating apparatus or other breathing apparatus. The housing has a body structure having connected portions with aligned passages, one portion having an end with the passage communicating with an inlet fitting mounted on the respective body member and the other end reduced to define a guide concentric with the passage therein. The other body portion has a valve seat adjacent to and spaced from said other end of the first body portion and a surrounding portion connected to same with a flexible seal therebetween. The seal has a resilient extendable portion and an end forming a valve element normally engaging the valve seat. The second named body portion has an outlet passage through which fluid is discharged when differential pressure on the valve element unseats same. The valve element has openings in the central portion and a flapper valve member is mounted thereon to normally close same and adapted to open in response to differential pressure thereon for flow of fluid from the inlet to the passage in the second named body portion.

3,739,802

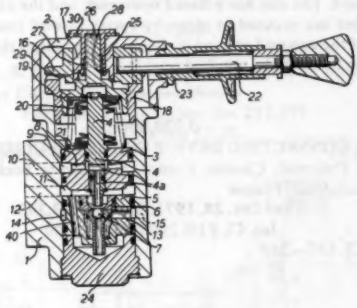
CONTROL VALVES FOR SPRING BRAKE UNITS

Wilbur Mills Page, and Ralph Coupland, both of Lincoln, England, assignors to Clayton Dewandre Company Limited, Lincoln, England

Claims priority, application Great Britain, Apr. 1, 1970, 15,415/70

Int. Cl. G05d *16/04*; F16k *31/524*

U.S. Cl. 137—116.3 **3 Claims**



A manually-operable valve for controlling the application of a spring-actuated fluid pressure-released brake unit in a full power hydraulic braking system comprises a valve element actuated by a control valve plunger and operable to connect the chamber of a spring brake unit selectively and gradually to a source of fluid pressure and to a sump, and manually-operable means actuating the plunger through rotary cam means and a graduated spring, the delivered fluid pressure reacting against the spring such that the pressure delivered is determined by the degree of travel of the manually-operable means.

3,739,803

OIL COMPENSATION SYSTEM FOR ELECTRIC POWER CABLES IMPREGNATED WITH INSULATING OIL

Antonio Ferrentino, Monza, Italy, assignor to Industrie Pirelli Societa Per Azioni, Milan, Italy

Filed Apr. 7, 1972, Ser. No. 242,127

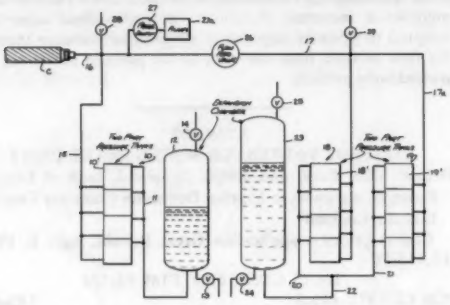
Claims priority, application Italy, June 11, 1971, 25700 A/71

Int. Cl. F17d *1/00*

U.S. Cl. 137—255 **9 Claims**

A system for compensating for normal and abnormal changes in oil volume in an oil-impregnated electric power cable comprising one or more two-part pressure tanks with one part containing the oil and connected to the cable oil duct to supply such oil thereto and with the other part applying pressure to the oil in the one part over the normal operating oil pressure range and one or more similar two-part pressure tanks similarly connected to the cable oil duct through a flow regulating valve but having the oil under a pressure at or below the lowest normal operating oil pressure so that oil is supplied to the cable duct thereby only when the cable oil pressure decreases to, or below, the lowest normal operating pressure. unit is mounted in an opening in the bottom of a cup-

shaped plastic jacket, and has two terminals which project into the jacket and which have lead wires connected thereto. The wires extend out through notched openings in the side of the jacket, and are retained in those openings by a ring member which seats on the open end of the jacket and which has a



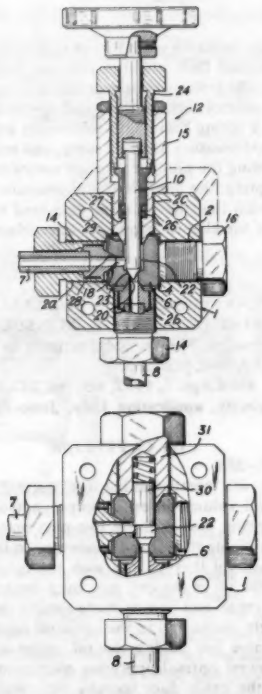
diametral web at opposite sides of which the lead wires are disposed. The can has a flared open end; and the can and ring member are secured in place by epoxy flowed into the open end of the can and around its flared end and into the jacket to a point beneath the notched openings.

3,739,804

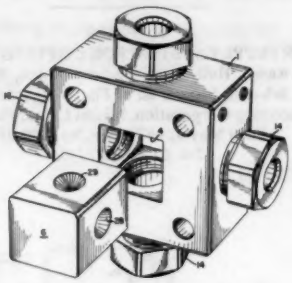
CONNECTING DEVICE FOR FLUID-CIRCUIT

Serge Dubreuil, Chatou, France, assignor to Societe S.B.F., Courbevoie, France

Filed Oct. 28, 1971, Ser. No. 193,243
Int. Cl. F16l *29/00*; F16k *5/06*
U.S. Cl. 137—269 **5 Claims**



The device is constituted by a support having an open-ended central recess of polygonal or circular cross-section, radial passageways which are at least equal in number to the fluid-circuit elements such as pipes or valves and provided with connecting means, a removable core which is inserted in



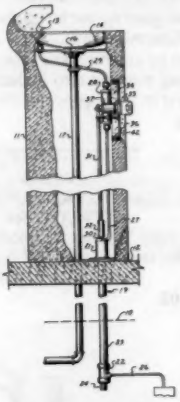
the recess and provided with ducts which communicate with the radial passageways, changing of the core being permitted without disassembling the fluid-circuit elements.

3,739,805

OPERATING HANDLE CONNECTOR ARRANGEMENT FOR DRINKING FOUNTAIN FREEZE-PROOF VALVE

Allen C. Wright, Moraga, Calif., assignor to Haws Drinking Fountain Company, Berkeley, Calif.

Filed Nov. 8, 1971, Ser. No. 196,688
Int. Cl. E03b *9/20*; F16k *31/46*
U.S. Cl. 137—294 **5 Claims**



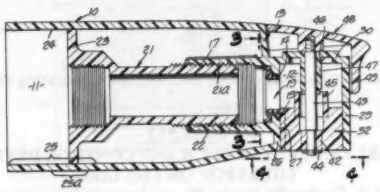
An arrangement for functionally interconnecting the operating handle of a drinking fountain with a freeze-proof valve therefor, and which arrangement facilitates installation of the handle assembly. The handle assembly is provided with a shaft journaled for rotation relative to an access cover plate adapted to be secured to a pedestal of the fountain in covering relation with an access opening in a sidewall thereof. The external end of the shaft is secured to the handle for rotation therewith, and the internal end of the shaft is equipped with an eccentric plate having an inwardly projecting pin at an eccentric position relative to the axis of rotation of the shaft. The pin is adapted to project through an eye provided at the upper end of an elongated operating rod which extends upwardly through the pedestal from the freeze-proof valve located at the lower end portion of the pedestal toward the upper end portion thereof, and is translatable between retracted and extended positions wherein the valve is respectively closed and opened. A spring secured between the rod and the access plate retains the rod and eye-equipped upper end thereof in

operative connection with the pin both during installation of the handle assembly and during use thereof.

3,739,806
DIAPHRAGM SPOUT ASSEMBLY

Ernest H. Bucknell, Los Angeles; Jack K. Rauh, Hacienda Heights, and Tony Radecki, Los Angeles, all of Calif., assignors to Ralph E. Bletcher; Frederick Robertson; Gary Robertson; Lenora Bucknell; Richard J. Bletcher; Marcia Liston; Carol A. Liston; James H. Liston; Hazel Brondum; Pearl Bletcher; Marcia Liston, as Trustee for Daniel E. Liston and Ernest H. Bucknell, part interest to each

Filed Oct. 4, 1971, Ser. No. 186,292
Int. Cl. F16l *5/00*
U.S. Cl. 137—359 **12 Claims**



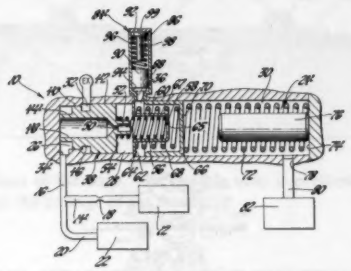
There is disclosed herein a spout assembly, such as a tub spout or the like for use in a fluid system employing a diverter valve and shower head or the like. Most of the parts of the assembly may be made of plastic, and the assembly includes a spout body having inlet and outlet chambers and a partition with an aperture therethrough separating the two chambers. A plunger is reciprocally mounted in the outlet chamber, and a portion thereof cooperates with a flexible diaphragm mounted in the aperture in the partition for terminating the flow of water through the spout assembly to thereby cause diverter valve operation, and flow through a shower head or the like in a conventional manner. A lift button is coupled with the plunger by a stem extending into the outlet chamber through a portion of the body. The plunger may include flow directing vanes for directing the flow of fluid from the outlet chamber in a desired manner. An adapter may be included within the inlet chamber of the body for enabling the spout assembly to be coupled with plumbing systems utilizing standard length outlet nipples, thus eliminating the necessity to custom make nipples on the job to fit varying wall thicknesses.

3,739,807
VALVING ARRANGEMENT

James D. Landrus, Plainfield; Allan S. Norris, and John O. Edmunds, both of Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 27, 1972, Ser. No. 238,152
Int. Cl. F16k *45/00*
U.S. Cl. 137—469 **11 Claims**

The drawings illustrate an improved dual-rate trimmer-valve for use with clutch and/or brake arrangements of an automatic transmission, wherein a valve element is first moved under a low fluid pressure to a clutch-regulating position while the clutch chamber is being filled with fluid. In one embodiment the valve element moves against a light spring force and in another embodiment such movement is unopposed. An orifice in an end wall of the valve element permits the fluid to continuously flow to an adjacent chamber to progressively move an initially adjacent plug member away from the valve element toward a stop member, against a predetermined spring force resulting from two oppositely disposed springs. Once the plug member has moved a predetermined distance and downshifting, for example, is accomplished, one of the two springs becomes ineffective, and the regulating effect of the remaining spring on the plug member and back through the fluid medium to the valve element and, hence, on the clutch or brake engagement process during upshifting, for example, increases thereafter at a slower rate than was the case while the two springs were exerting a combined varying influence on the valve element, until contact is made with the

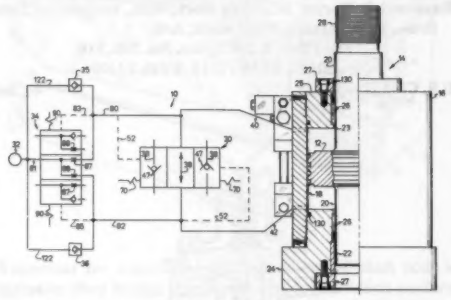


stop member. At this point, full clutch engagement is complete, and, due to a differential area feature on the valve element and/or an adjacent spring, the valve element is snapped back to the initial nonregulating position.

3,739,808
HYDRAULIC SHOCK DAMPING DEVICE

Lawrence R. Landherr, Racine, Wis., assignor to Milwaukee Cylinder Corporation, Cudahy, Wis.

Filed Jan. 13, 1972, Ser. No. 217,477
Int. Cl. F16k *17/26*
U.S. Cl. 137—493 **18 Claims**



A hydraulic shock damping device for a double-acting hydraulic snubbing piston-cylinder assembly, the device including a pressure responsive fluid bypass shut-off valve connected to both ends of the cylinder, an accumulator connected to maintain fluid pressure in the cylinder, an accumulator control valve responsive to a predetermined pressure to close the high pressure connection between the accumulator and high pressure side of the cylinder and pressure responsive relief valves connected to each side of the device and to the accumulator to relieve the pressure in the device when it exceeds a predetermined maximum.

3,739,809
ENGINE APPARATUS

Otmar M. Ulbing, R.D. No. 1, Berkshire, N.Y.

Division of Ser. No. 857,162, Sept. 11, 1969, which is a continuation-in-part of Ser. No. 786,233, Dec. 23, 1968. This application June 21, 1971, Ser. No. 155,114
Int. Cl. F04b *49/00, 39/00*
U.S. Cl. 137—565.2 **28 Claims**

The fuel-per-stroke which fuel injection systems deliver to an engine is varied in accordance with engine speed to provide a desired fuel-air mixture ratio by means of a spring-loaded check valve responsive to momentary pressure impulses occurring in a pump chamber and operative to divert increasing

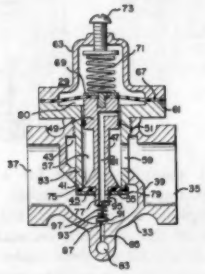
fuel at increasing engine speeds. The check valve spring loading is varied simultaneously with the pump delivery setting in some embodiments, and valve operation is varied in accordance with engine speed and/or acceleration in some embodiments. The system is illustrated in connection with several reciprocating fuel-injection pumps and several rotary fuel-injection pumps.

3,739,810

PRESSURE CONTROLLED WATER SYSTEM WITH ISOLATABLE PRESSURE SWITCH

Raymond E. Horan, Jr., Little Rock, Ark., assignor to Jacuzzi Bros., Incorporated, Little Rock, Ark.

Filed Dec. 9, 1971, Ser. No. 206,310
Int. Cl. E03b *11/16;* **F04b** *11/00*
U.S. Cl. 137—568 **4 Claims**



A water system with a pressure controlling valve, includes a pressure switch responsive to full closing of said valve to disconnect the pump in the system, and having its cut-in responsive pressure set sufficiently close to the cutout pressure, to assure delivery to service at pressure which is indistinguishably constant.

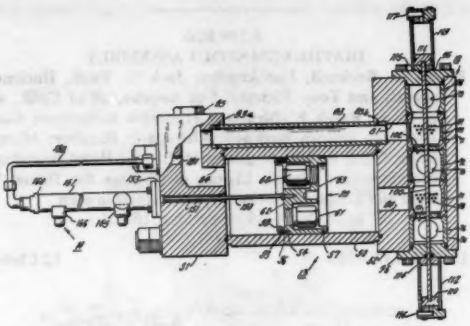
3,739,811

FOUR-WAY VALVE

Frederick A. Gross, 212 N. Gramercy Place, Los Angeles, Calif.

Division of Ser. No. 42,226, June 1, 1970, Pat. No. 3,657,925.
This application Aug. 14, 1971, Ser. No. 174,567
Int. Cl. F16k *11/00*
U.S. Cl. 137—625.27 **7 Claims**

A four-way valve is formed of an elongated channel which contains a stack of hollow valve cages. The cages have end portions which form spaced poppet valve seats for poppet valve disks which are carried on a common operating shaft.

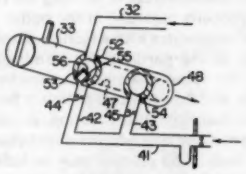


3,739,812

FUEL CONTROL SYSTEM AND CONTROL DEVICE THEREFOR OR THE LIKE

Francis S. Genbauffe, Irwin, Pa., assignor to Robertshaw Controls Company, Richmond, Va.

Division of Ser. No. 47,356, June 18, 1970, Pat. No. 3,619,095.
This application Aug. 23, 1971, Ser. No. 174,229
Int. Cl. F23q *9/08*
U.S. Cl. 137—625.32 **10 Claims**



Control means having a first passage means for interconnecting a source of fuel to a pilot burner means to produce a small standby flame at the pilot burner means, the control means having second passage means for additionally interconnecting the source of fuel to the pilot burner means to produce a large heater flame at the pilot burner means whereby no fuel is adapted to be interconnected to a main burner means when only a small standby flame exists at the pilot burner means and the source of fuel is adapted to be interconnected to the main burner means when the large heater flame exists at the pilot burner means. A single adjusting means is provided in the passage means for adjusting the fuel flow rate therethrough by substantially infinitely adjusting the flow rate through one of the passages and adjusting the flow rate through the other passage means in substantially a stepped manner.

3,739,813

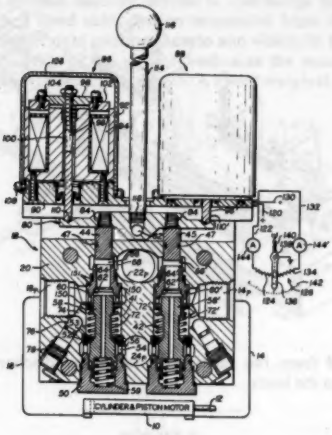
POWER AND SPEED CONTROL FOR DOUBLE-ACTING CYLINDER-AND-PISTON MOTOR

Donald A. Worden, Pompton Plains, N.J., assignor to Marotta Scientific Controls Inc., Boonton, N.J.

Filed Aug. 13, 1970, Ser. No. 63,447
Int. Cl. F15b *13/044*
U.S. Cl. 137—625.65 **11 Claims**

This specification discloses a controller for working fluid for a cylinder-and-piston motor. The controller has valve means that supply fluid at a rate of flow proportional to the force used to actuate the valve means and regardless of the pressure of the working fluid. Motor speed is thus made proportional to force supplied to the controller. For a double-acting motor,

different valve means for opposite ends of the cylinder are operated by different ends of a rocker arm that can be actu-



ated by different solenoids or by a manual lever override. Pressure of the working fluid can be made adjustable.

3,739,814

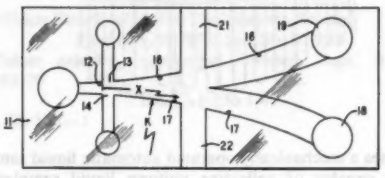
LAMINAR FLOW WALL ATTACHMENT FLUID LOGIC DEVICE

Isaac Greber, Shaker Heights, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 8, 1971, Ser. No. 160,864

Int. Cl. F15c *1/18*

U.S. Cl. 137—81.5 **7 Claims**



A wall attachment fluidic device operating in the laminar flow range is disclosed. Either bistable or monostable devices can be produced, provided the attachment wall associated with each stable state conforms to a particular shape. That particular shape is one in which the radius of curvature K of the attachment wall is initially substantially equal to $x^{1/2}$, where x is a nondimensional distance measured along the arc of the wall for the power jet inlet. The radius of curvature K gradually increases until it reaches $x^{3/4}$. Thereafter, it remains equal to $x^{3/4}$ until the jet receiver is reached.

3,739,815

FLEXIBLE COLLAPSIBLE TUBING

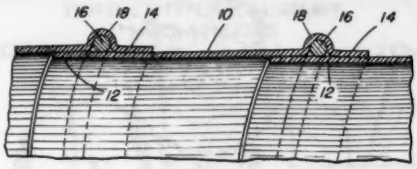
William E. Rejeski, Farmington, Conn., assignor to The Wiremold Company, West Hartford, Conn.

Filed Apr. 30, 1971, Ser. No. 138,975

Int. Cl. F16l *11/06*

U.S. Cl. 138—122 **10 Claims**

A flexible strip of elastomeric material, or a fabric strip which is coated with or contains an elastomeric material is wound helically with overlapped edges. A form-giving member of stiff bendable thermoplastic material in rod-like form is laid between the overlapped edges and secured there by self adhesion of the overlapped edges. Then the tubing is heat-treated to heat-set the form-giving helix in its helical form and at the same time cure the strip and to weld the over-



lapped edges of the strip. The flexible strip is preferably impervious to the passage of gas through it.

3,739,816

CONTROL APPARATUS FOR WAVE SHED FORMING MEANS

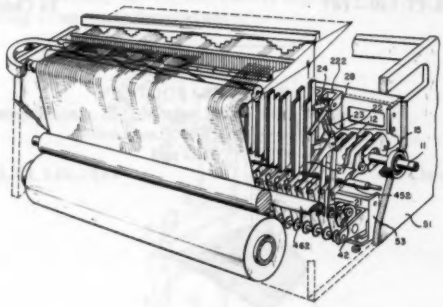
Zdenek Kramenic, Chocen; Vitezslav Vasek, Zbynek Miks, and Zdenek Solik, all of Usti nad Orlici, Czechoslovakia, assignors to Vyzkumny Ustav Bavinarsky, Usti nad Orlici, Czechoslovakia

Filed Apr. 27, 1971, Ser. No. 137,877

Claims priority, application Czechoslovakia, Apr. 28, 1970, 2941/70

Int. Cl. D03d *47/26*

U.S. Cl. 139—12 **9 Claims**



Apparatus for controlling the movement of shaft rods in progressive shed looms, that is, weaving looms which perform the simultaneous weaving of weft threads, the shaft rods performing a wave-like harmoniously repeated continuous shedding movement by individual sections. Counter-movement of at least two shaft rods of one section moving in forced opposite directions is provided by one lever means which is phase shifted with respect to the other sections and reciprocates in accordance with the phase shift. The ratio of arms of the lever means is changeable, the point of tipping of the lever means being adjustable. To close the sheds, the symmetrically dead center area of the lifting means of the shaft rods is symmetrically limited, and thereafter the said shaft rods are displaced into alignment.

3,739,817

DRIVE ARRANGEMENT FOR THE TERRY WARPS ON A TERRY LOOM

Max Kunz, Ruti/Zurich, Switzerland, assignor to Ruti Machinery Works Ltd., Formerly Caspar Honegger, Ruti/Zurich, Switzerland

Filed Apr. 16, 1971, Ser. No. 134,737

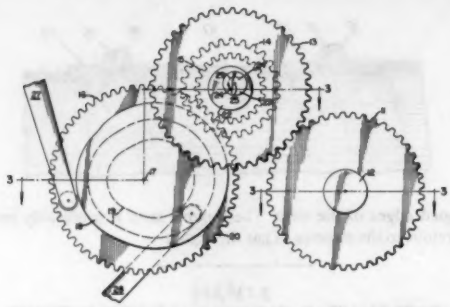
Claims priority, application Switzerland, Apr. 22, 1970, 5983/70

Int. Cl. D03d *39/22*

U.S. Cl. 139—25 **4 Claims**

A terry loom drive control arrangement for varying a predetermined number of weft insertions in relationship to the

advance of the terry warp threads by controlling the advance



of the terry warp threads in dependence on the revolutions of the terry loom drive shaft.

3,739,818

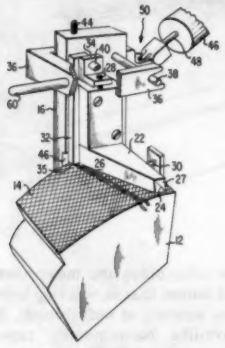
WIRE STRIPPING APPARATUS AND METHOD

Robert Van Fleet Tompkins, North Palm Beach, Fla., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 11, 1971, Ser. No. 197,831

Int. Cl. B21f *1/02*

U.S. Cl. 140—147 **12 Claims**



To facilitate the removal of a length of covering of a wire or wires, an apparatus is provided which both squeezes and rotates the wire or wires between two opposed facing wire gripping surfaces which translate with respect to each other so as to loosen the covering.

3,739,819

APPARATUS FOR STRAIGHTENING AXIAL LEADED COMPONENTS

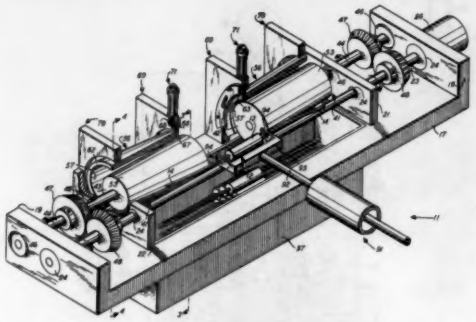
Robert R. Swanson, Winston-Salem, N.C., assignor to Western Electric Company Incorporated, New York, N.Y.

Filed Apr. 28, 1972, Ser. No. 248,463

Int. Cl. B21f *1/02*

U.S. Cl. 140—147 **6 Claims**

A co-axial lead straightening apparatus has a pair of conically shaped shoes selectively positioned adjacent to a pair of rotatably mounted frustum shaped drums. At a discharge end, the distance between each shoe and its respective drum is held constant along the length of the drum and at a receiving end, the distance between each shoe and its respective drum increases from the base of the drum to the top of the drum. Bent leads of co-axial lead components moved between the drums and shoes at the receiving end are rotated through decreasing distances between the drums and shoes as the component is



displaced from the receiving end to the discharge end to straighten the leads.

3,739,820

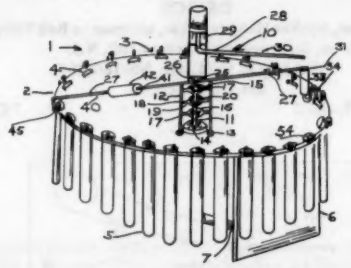
LIQUID SAMPLE COLLECTOR

Stanley J. Schmidt, 4146 Flad Avenue, St. Louis, Mo.

Filed Dec. 17, 1970, Ser. No. 99,125

Int. Cl. B67c *3/34*

U.S. Cl. 141—284 **5 Claims**



Discloses a mechanically operated automatic liquid sample collector capable of collecting uniform liquid samples of between 10 and 100 milliliters in size from a dripping column. The automatic liquid sample collector makes use of a rotatable liquid receiving and dispensing mechanism in the form of a delivery arm and a balance arm which rotates and delivers samples to successive test tubes in a non-rotatable test tube rack. This is accomplished by a pin means having a spatial relation to said test tube openings, a positioning and detent means for positioning and detaining said delivery arm over said successive test tubes and an escapement means to allow said positioning means to disengage from said pin means.

3,739,821

MACHINE-TRANSFERRABLE PIPETTE

Theodore Watkin, Stamford, Conn., and Donald F. Wiseman, Wayne, N.J., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

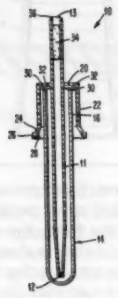
Filed Apr. 26, 1971, Ser. No. 137,385

Int. Cl. B01l *3/02*

U.S. Cl. 141—392 **6 Claims**

A pipette including an elongated tubular body open at both ends and having as a fixed part thereof a radial flange structure intermediate of its ends by which flange structure the body is suspended from the mouth of a vessel in the central region thereof in operative position to aspirate the liquid contents of the vessel. This is the normal or storage position of the

pipette which includes in the flange structure a portion lying in a plane normal to that of the body and which in the last-mentioned position overlies the mouth of the vessel in proximity thereto and extends laterally beyond it. The flange structure also includes a fixed skirt portion suspended from the first named portion in rigid relation thereto and which, in the last-mentioned position of the pipette, embraces the mouth portion of the vessel telescoped therein. A lower marginal portion



of the skirt is tapered interiorly to coact with the mouth of the vessel when the pipette is dropped into the vessel, effectively centering and guiding the pipette toward its normal position from a raised position. The flange structure also has a part thereof which coacts with the mouth of the vessel, in the stored position of the pipette, and which forms an air passageway from the vessel only from beneath the skirt portion.

3,739,822

WOOD-TURNING MACHINE

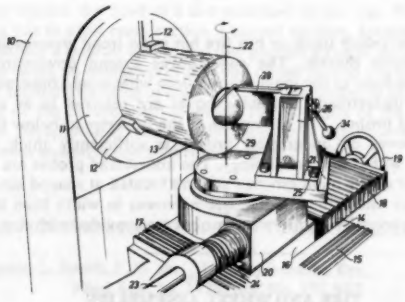
Nils Oskar Tore Loof, S-540 72 Gullspant, Sweden

Filed Nov. 9, 1970, Ser. No. 87,936

Claims priority, application Sweden, Sept. 8, 1970, 12201/70

Int. Cl. B23b *5/40*

U.S. Cl. 142—1 **2 Claims**



A machine to facilitate the production of hollow bodies of two co-axial rotational surfaces. A tool holder in the shape of a spherical segment carries an easily replaceable cutting tool. The tool holder is capable of linear movement in three directions and is also rotatable about an axis perpendicular to the rotation axis of the workpiece. The tool holder is itself easily replaceable to facilitate the fabrication of bodies whose surfaces have different radii of curvature.

3,739,823

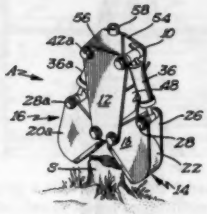
DEVICE FOR CUTTING TREE STUMPS

Maurice J. Bartell, Duluth, Minn., assignor to Barko Hydraulics, Inc., Duluth, Minn.

Filed Dec. 6, 1971, Ser. No. 204,897

Int. Cl. A01g *23/06*

U.S. Cl. 144—2 N **2 Claims**



A device for cutting tree stumps including a support with a pair of cutters pivotally mounted thereon each cutter having a pair of side plates connected by a combination bottom end wall, the edge of each side plate bottom and end wall having a sharpened edge and the cutters in direct opposed relation and a hydraulic ram connected to each of said cutters and the support for pivotally moving said cutters together and apart for cutting a tree stump therebetween.

3,739,824

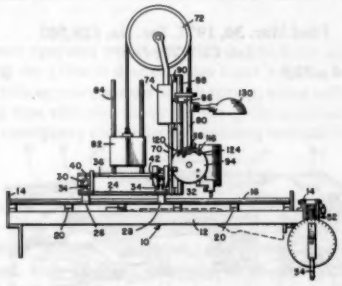
PANTOGRAPH APPARATUS

George Hoenig, 6521 Morton Drive, Boise, Idaho

Filed Nov. 3, 1971, Ser. No. 195,308

Int. Cl. B27c *5/00*

U.S. Cl. 144—144 **9 Claims**

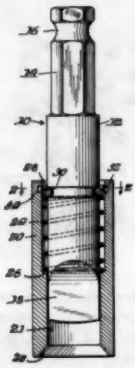


Improved pantograph apparatus for providing pantographic movement of an instrument in three dimensional or in-depth aspects having the usual means for providing travel in all horizontal planes and having further an elevating mechanism with an adjustably oriented tilting plate on which are mounted a router and stylus element for performing the controlled operations according to the invention.

ERRATUM

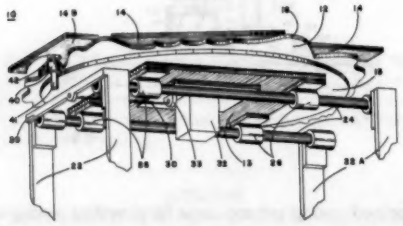
For Class 144—323 see:
Patent No. 3,739,826

3,739,825
SCREWDRIVER
John D. Knox, Louisville, Ky., assignor to Vermont American Corporation, Louisville, Ky.
Filed Oct. 6, 1971, Ser. No. 186,844
Int. Cl. B25b *15/00*
U.S. Cl. 145—51 7 Claims



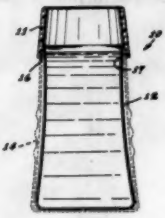
The bit of a screwdriver has a finder sleeve supported about its working end by a non-circular split ring having one or more straight sections against which a shoulder on the bit engages. The ring is flat on its O.D. side and it is disposed in a larger-diametered groove in the sleeve so that its flat side is spaced off the flat opposing wall of the groove and allows for expanding the ring further into the groove to remove the bit from its sleeve.

3,739,826
FEED DEVICE
Friedrich P. Schell, 4313 San Bernardino Avenue, Las Vegas, Nev.
Filed Mar. 30, 1971, Ser. No. 129,507
Int. Cl. B27c *1/00*
U.S. Cl. 144—323 8 Claims



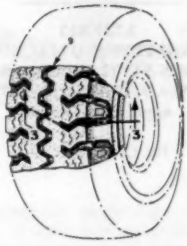
A device for feeding materials to be shaped to a shaping tool comprises a rotatable platform supported from its under side. In one embodiment, the device is provided with guide and biasing means which cooperates to provide reciprocal motion to the platform. A piece of shaped material which shape is to be reproduced on a material workpiece is attached to the platform. A guide member is maintained in abutment with the surface of the shaped material while a shaping tool maintained at a fixed distance from the guide member reproduces the shaped surface on the material workpiece.

3,739,827
DISPOSABLE CONTAINER
Beverly R. Sondel, 5227 Melvin Avenue, Tarzana, Calif.
Filed Apr. 19, 1971, Ser. No. 134,951
Int. Cl. B65d
U.S. Cl. 150—0.5 12 Claims



A disposable container for consumable goods having a generally rigid or semi-rigid upper portion and a non-rigid thin wall bottom portion in the form, for example, of a sack. A reusable rigid or semi-rigid shell is also provided that receives the bottom portion and in use, attaches to the top portion. The bottom portion can also be provided in a double wall sack or pouch arrangement for insulation and/or rigidity purposes.

3,739,828
TIRE UNDERTREAD PROBE
Abraham R. Schaevitz, Collingswood, N.J., assignor to Super Tire Engineering Company, Camden, N.J.
Filed June 18, 1971, Ser. No. 154,527
Int. Cl. B60c *11/00*
U.S. Cl. 152—209 R 6 Claims



A heavy-duty truck or bus tire has main tread grooves and sub-grooves therein. The sub-grooves extend downwardly from the floor of the main grooves into what would otherwise be the undertread. The sub-grooves are referred to as undertread probes. The remainder of the undertread below the sub-grooves or undertread probes is sufficiently thick to comply with design technology. The undertread probes are in the floor of the main grooves and are located at spaced intervals. The undertread probes are narrower in width than the main grooves. The undertread probes are provided with ties.

3,739,829
TIRE AND WHEEL ASSEMBLIES
Leslie Vernon Powell, and Reginald Harold Edwards, both of Birmingham, England, assignors to Dunlop Holding Limited, London, England
Filed June 18, 1971, Ser. No. 154,326
Claims priority, application Great Britain, June 20, 1970, 30,033/70; Apr. 3, 1971, 8,592/71
Int. Cl. B60c *5/00*
U.S. Cl. 152—330 15 Claims

A pneumatic tire and wheel assembly including a single chamber pneumatic tire in which is provided a flowable liquid

lubricant to facilitate relative movement between the internal surface of the tire which come into contact when the tire is run

under load in the deflated condition, of which the following is a specification.

3,739,830

RIM SIDE RING FASTENING DEVICE

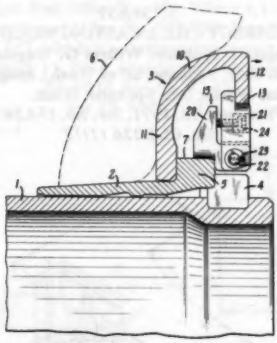
Henri Verdier, Beauregard-L-Eveque, France, assignor to Campagnie Generale Des Etablissements Michdlin, raison sociale Michelin & Cie, Clermont-Ferrand, France

Filed Feb. 3, 1972, Ser. No. 223,174

Claims priority, application France, Feb. 8, 1971, 7104193

Int. Cl. B60b *25/12, 25/14;* **B60c** *19/00*

U.S. Cl. 152—398 **2 Claims**



The rim of a wheel for road construction vehicles and the like comprises a conical ring and an associated side ring that bear against the bead of a tire mounted on the rim. The side ring has in axial cross section a curved portion, forming substantially a quarter circle, and two parallel straight portions, a first being an extension of one end of the curved portion and the second extending in a direction perpendicular to the other end of the curved portion and in the direction of the wheel axis. An adjustable fastening device permits adjustment of the conical and side rings with respect to each other.

3,739,831

DEVICE FOR REMOVING HEAVY DUTY TIRES FROM WHEELS

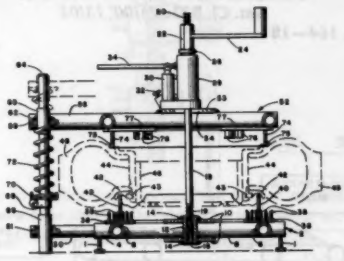
Vernon L. Smith, P. O. Box 354, Burkburnett, Tex.

Filed Aug. 16, 1971, Ser. No. 171,947

Int. Cl. B60c *25/06*

U.S. Cl. 157—1.28 **2 Claims**

A tire removing device comprising upper and lower frames to receive a tire and wheel therebetween, so that selected rings may be positioned on the adjacent faces of the frames, one of which rings engages the side of the tire and the other of which engages the removable side ring of a wheel. A hollow jack is positioned on the face of the upper frame. A screwthreaded rod is positioned through the hollow jack and through a slotted plate on the upper frame, which rod is anchored to a screwthreaded nut on the lower frame. An abutment on the rod, such as a nut, abuts with the upper face of the jack plunger, so upon extending the plunger, the frames will be moved together, with one of the rings on the frame engaging a side of the tire adjacent the side rim thereof and the other of



the rings engaging a side ring of the wheel so as to urge the side ring and the tire towards each other to enable the lock ring on the wheel to be removed, and the subsequent removal of the tire.

3,739,832

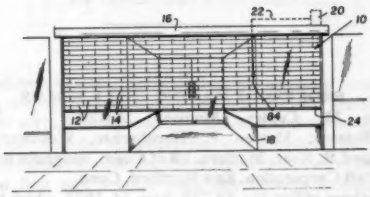
OVERHEAD GRILLE

Bernard J. Sivin, Commack, N.Y., assignor to The Celotex Corporation, Tampa, Fla.

Filed Jan. 10, 1972, Ser. No. 216,643

Int. Cl. E06b *9/08*

U.S. Cl. 160—133 **3 Claims**



A motor operated overhead grille in which the motor, when powering the grille in descent, also loads a spring of an emergency grille-opening means which spring, when called upon to do so, is thus effective in raising the grille sufficiently to provide an emergency escape or exit opening beneath the grille.

3,739,833

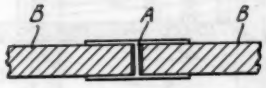
ASSEMBLY METHOD FOR THE LINING OF HOT TOPS AND THE LIKE IN FOUNDRY PRACTICE

Paul Gilger Rausch, Cleveland, and Walter Donald Todish, Medina, both of Ohio, assignors to Foseco Trading A. G., Chur, Switzerland

Continuation of Ser. No. 819,391, April 25, 1969, abandoned. This application Oct. 31, 1971, Ser. No. 188,765

Int. Cl. B22c *7/00*

U.S. Cl. 164—6 **2 Claims**



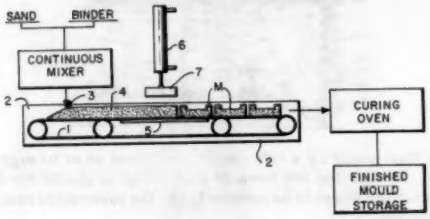
Hot top tiles are secured together by the use of H-section metal strips, the edges of the tiles being secured in the openings of the H-section.

3,739,834

METHOD FOR MAKING FOUNDRY MOULDS

Kent Woonton; Jeffrey R. Short, III; Don Mills, and Kenneth N. Roach, all of Toronto, Canada, assignors to J. R. Short Milling Company, Chicago, Ill.

Filed June 21, 1971, Ser. No. 154,763
Int. Cl. B22c *25/00, 15/02*
U.S. Cl. 164—18 15 Claims



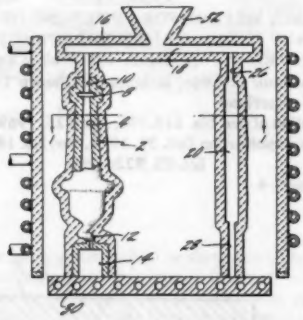
Method for continuous, high speed production of foundry mould parts by pressing them from a continuous bed of foundry sand mix which is based on a curable binder, pressing of the part being carried out at a time when the mix has adequate plastic flowability for pressure moulding and adequate potential curability to assure a strong, rigid cured product.

3,739,835

PROCESS OF MAKING SHELL MOLDS

Stephen M. Copley, Madison; Anthony F. Giamei, Middletown; Merton F. Hornbecker, Woodbury, and Bernard H. Kear, Madison, all of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Division of Ser. No. 63,738, Aug. 14, 1970, which is a continuation-in-part of Ser. No. 714,722, March 20, 1968. This application Dec. 1, 1971, Ser. No. 203,673
Int. Cl. B22c *9/04*
U.S. Cl. 164—35 5 Claims



Apparatus for the formation of single crystal articles by directionally solidified casting techniques which substantially eliminates the formation of heterogeneous discontinuities in the casting.

3,739,836

PROCESS OF DIE CASTING OF BRASS

Edwin M. Scott, Jr., P. O. Box 323, Tujunga, Calif.

Continuation-in-part of Ser. No. 37,340, May 14, 1970, Pat. No. 3,654,985, which is a continuation-in-part of Ser. No. 684,497, Nov. 20, 1967, abandoned. This application Apr. 7, 1972, Ser. No. 242,217. The portion of the term of this patent subsequent to Apr. 11, 1989, has been disclaimed.
Int. Cl. B22c *3/00*
U.S. Cl. 164—72 7 Claims

The disclosure solves a persistent problem in die casting of brass alloys, wherein lubrication of the steel die or mold is generally difficult. In accordance with the disclosure, the surfaces of the mold to come in contact with the molten brass are coated with a film of a phenyl-methyl silicone fluid which is a linear polymer having repeating units of the element

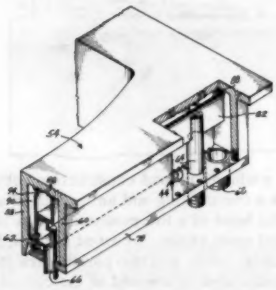
wherein R_1 is methyl and wherein R_2 is chosen selectively to be either methyl or phenyl, so that the resulting polymer has a phenyl:methyl ratio of between about 0.30:1.0 and about 0.85:1.0 and a viscosity at 77° F. of from about 50 to about 1,000 centistokes. The fluid may be applied in the form of a dilute aqueous dispersion, or as a dilute solution in a suitable solvent such as petroleum naphtha.

3,739,837

DIRECT CHILL CASTING MOLD

Frank E. Wagstaff, Spokane; William G. Wagstaff, Veradale, and Paul H. May, Spokane, all of Wash., assignors to Wagstaff Machine Works, Inc., Spokane, Wash.

Filed June 18, 1971, Ser. No. 154,567
Int. Cl. B22d *11/12*
U.S. Cl. 164—283 17 Claims



The mold has means therein defining a fluid coolant chamber around the inner peripheral wall thereof, and an aperture in the body thereof, about one end opening thereof, adjacent the inner peripheral wall of the mold. There are also means in the mold for supplying fluid coolant to the aperture, for discharge into the inner peripheral plane of the mold, including a fluid coolant inlet which is connected to the aperture separately and independently of the chamber.

3,739,838

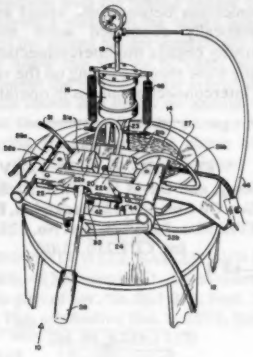
APPARATUS FOR SEMI-AUTOMATIC, HIGH PRODUCTION DIE CASTING

Barrett L. Taft, 2940 Cove Trail, Maitland, Fla.

Filed June 4, 1971, Ser. No. 149,998
Int. Cl. B22d *17/06, 27/14*
U.S. Cl. 164—309 11 Claims

A semi-automatic high production die casting machine, involving use of a novel mold arrangement such that fishing sin-

kers, wheel weights or other such articles or components can be made on a rapid basis out of castable metal without any



subsequent trimming or other work with respect to the finished articles or components being necessary.

3,739,839

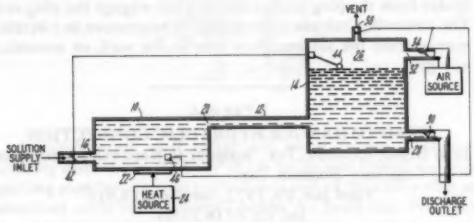
SYSTEM FOR PREVENTING SCALE FORMATION WHEN HEATING FLUIDS CONTAINING SCALE-FORMING INGREDIENTS

George S. Light, Post Office Box 496, Winsted, Conn.

Continuation-in-part of Ser. No. 735,790, June 10, 1968, Pat. No. 3,565,767, which is a continuation-in-part of Ser. No. 439,047, March 11, 1965, abandoned. This application Nov. 24, 1970, Ser. No. 92,436

Int. Cl. F25b *13/00*

U.S. Cl. 165—1 5 Claims



A system for heating a supply solution containing scale-forming ingredients without depositing encrusted scale on the heating surface thereof includes a heating chamber, a separate pressurizing chamber and an unobstructed conduit connecting the chambers for solution flow therethrough. An air space in the pressurizing chamber is provided for applying a positive air pressure to the solution in the pressurizing chamber and a back pressure in the solution for suppressing vapor bubble formation at the heating surface.

3,739,840

HEAT EXCHANGER HAVING RESILIENTLY MOUNTED TUBULAR MEMBERS

Samuel Paul Jones, Erie, Pa., assignor to General Electric Company, Erie, Pa.

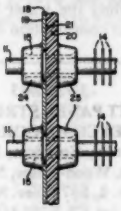
Filed Sept. 1, 1971, Ser. No. 176,953

Int. Cl. F28f *9/04*

U.S. Cl. 165—69 3 Claims

The invention relates to tubular heat exchange devices and in particular to improved arrangements of tube sheets for flexibly securing radiating tubes to the liquid containing chambers of the tube exchangers.

Heat exchange devices commonly comprise a plurality of parallel tubes extending between input and output liquid containing chambers or liquid tanks. The temperature of liquid circulated by the tubes from the input to the output tank is modified by the region intermediate the tanks, commonly



referred to as the cooling region. Each tank comprises a wall portion and a tube sheet or header. The tube sheet serves as a wall of the tank and secures the tubes thereto.

3,739,841

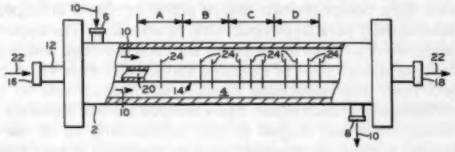
INDIRECT HEAT TRANSFER APPARATUS

William M. Small, and Donald K. Petree, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 24, 1971, Ser. No. 127,543

Int. Cl. F28b *1/06*

U.S. Cl. 165—146 3 Claims



An indirect heat transfer apparatus has a second conduit extending through a first conduit with heat transfer members on the outer surface of the second conduit. The total surface area of the heat transfer members per unit length of the second conduit changes for altering the incremental heat transfer rate between first and second materials flowing through their respective first and second conduits.

3,739,842

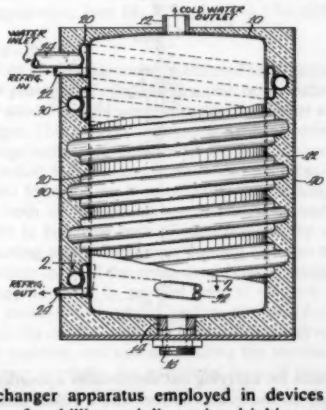
WATER COOLER HEAT EXCHANGER

James M. Whalen, Glenview, Ill., assignor to Remcor Products Company, Chicago, Ill.

Filed May 12, 1971, Ser. No. 142,637

Int. Cl. F28d *7/00*

U.S. Cl. 165—164 2 Claims



Heat exchanger apparatus employed in devices such as water coolers for chilling and dispensing drinking water is im-

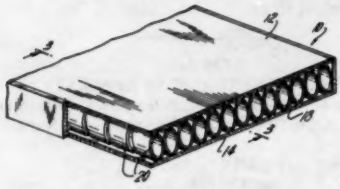
proved by the combination of a storage tank for chilled water, a refrigerant coil encircling said tank for maintaining the water therein cool, and a water supply coil leading to said tank and encircling said refrigerant coil in heat exchange relation therewith for pre-cooling the water as it is supplied to said tank; and the particular combination of said coils.

3,739,843

LIGHTWEIGHT PANEL STRUCTURE OF THE HONEYCOMB CORE TYPE

Richard Joseph Haberski, Emerson, N.J., assignor to Curtis-Wright Corporation, Wood-Ridge, N.J.

Filed Nov. 1, 1971, Ser. No. 194,135
Int. Cl. F28f *3/14*
U.S. Cl. 165—170 **10 Claims**



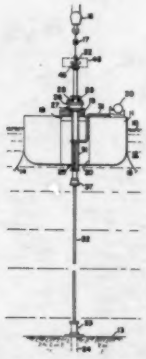
An improved lightweight panel structure of the honeycomb core type comprises two spaced plates or sheets arranged in substantially parallel or concentric relationship. The opposite, juxtaposed surfaces of the plates are each provided with a plurality of spaced rows of extended surface elements which project from their associated surfaces in alternate side by side relationship to each other. The extended surface elements are dimensioned and shaped so that substantially all of the extended surface elements are each in abutment at two spaced points to thereby provide the panel assembly with structural strength resistant to flexure of the plates toward each other under compressive loading or bending force acting against the panel.

3,739,844

APPARATUS FOR CARRYING OUT UNDERWATER WELLHEAD OPERATIONS

Charles P. Peterman, Houston, Tex.; Glenn D. Johnson, Downey, Calif., and William H. Petersen, Metairie, La., assignors to Shell Oil Company, New York, N.Y.

Filed Apr. 28, 1971, Ser. No. 138,028
Int. Cl. E21c *19/00*
U.S. Cl. 166—.5 **8 Claims**



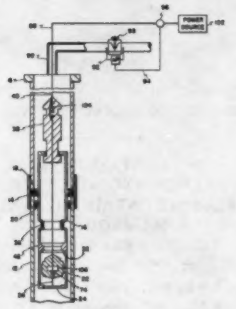
Apparatus for carrying out underwater operations between a wellhead on the ocean bottom and a vessel floating on the water surface wherein the vessel is subject to wave motion. Interconnection means are suspended from the floating vessel adapted to operatively engage the wellhead to thereby provide fluid communication between the vessel and the wellhead. Hydro-pneumatically controlled wave motion cancelling means operatively engage the interconnection means to compensate for any wave motions acting on the vessel and thereby maintain the interconnection means in operative position.

3,739,845

WELLBORE SAFETY VALVE

Holland J. Berry, and David W. Lewis, Richardson, Tex., assignors to Sun Oil Company, Philadelphia, Pa.

Filed Mar. 26, 1971, Ser. No. 128,290
Int. Cl. E21b *35/00*
U.S. Cl. 166—65 R **12 Claims**



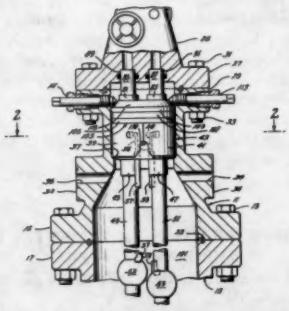
A wellbore safety valve system includes a plug held by a retention spider, a plug seat separated from and located above the plug, and a controlled release section for separating the spider from the plug so that the plug can engage the plug seat. The controlled release section may be responsive to electrical energy from the surface, flow rate in the well, or acoustical energy.

3,739,846

HEAD TO HANGER HYDRAULIC CONNECTION

John Beson, Houston, Tex., assignor to Rockwell Manufacturing Company, Houston, Tex.

Filed Jan. 19, 1972, Ser. No. 218,916
Int. Cl. E21b *33/03*
U.S. Cl. 166—89 **14 Claims**



Well completion apparatus comprises a tubing head and a tubing hanger, tubing suspended from the hanger, a valve in the tubing biased to closed position and adapted to be opened by the pressure from a control line, a control line extending from the valve to the tubing hanger and connected to passage means in the tubing hanger, passage means in the tubing head adapted for connection to a source of control pressure fluid,

and means for connecting the passage means in the head with the passage means in the hanger. In one embodiment a retractable screw type tubular stinger in the tubing head makes the connection with the tubing hanger passage means by sealingly entering a socket in the tubing hanger. Means is provided to align the tubing hanger azimuthally relative to the tubing head to allow the stinger to enter such socket. In another embodiment the tubing hanger is provided with annular isolation seals above and below an annular groove in the tubing hanger at the outer end of the passage means therein, the seals engaging the tubing head above and below the passage means therein. In this embodiment no azimuthal alignment means is required.

3,739,847

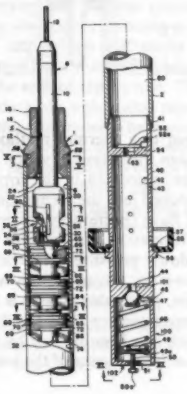
COMBINATION WELL BAILER AND SWAB

John M. Reynolds, 403 Monrovia St., Shreveport, La.

Continuation-in-part of Ser. No. 861,078, Sept. 25, 1969, Pat. No. 3,621,925. This application Oct. 6, 1971, Ser. No. 187,007

Int. Cl. E21b *27/00*

U.S. Cl. 166—107 **9 Claims**



A combination well bailer and swab having a plunger slidably disposed in the body of the bailer and a swab cup supporting mandrel secured to the lower end of the bailer with an overload relief valve disposed below the swab cup. Ports are provided through the swab mandrel above the swab cup, communicating with the annulus exteriorly of the swab mandrel, with an upwardly opening flapper check valve between the ports and the plunger so that upon upward movement of the plunger the flapper valve is opened, drawing fluid interiorly of the body from above the swab cup, thereby drawing suspended sand and other foreign material into the body where it may be collected or expelled, and an undue accumulation of sand within the body will open the safety relief valve and dump same into the well below the swab cup.

3,739,848

WATER-THICKENING POLYMER-SURFACTANT ADSORPTION PRODUCT

Jimmie B. Lawson, Houston, Tex., and Pieter F. Mijnlieff, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

Filed May 17, 1971, Ser. No. 144,278

Int. Cl. E21b *43/16*

U.S. Cl. 166—274 **7 Claims**

An aqueous liquid is thickened by dissolving in it a substantially non-ionic polymeric material that is at least partially water-soluble and a surfactant that is ionic and combines with the polymeric material and causes it to behave like a dissolved polyelectrolyte.

3,739,849

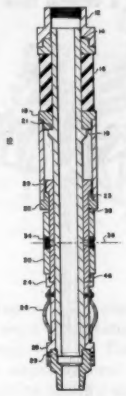
GRIPPING MEMBER FOR WELL TOOL

Robert B. Meripol, Dallas, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Feb. 1, 1971, Ser. No. 111,401

Int. Cl. E21b *23/00*

U.S. Cl. 166—216 **6 Claims**



A slip or gripping member that is used on well tools to lock the well tools at a desired location in a well bore. The slip is movably mounted on the well tool and is provided with wall engaging teeth on relatively opposite sides thereof adjacent to each end. The wall engaging teeth are separated on the slip by a distance that is greater than the diameter of the well bore so that movement of the slip to an angular position brings the teeth into engagement with the well bore wall. Relatively movable abutments are provided on the well tool which are brought into engagement with at least one end of the slip to cause the slip to move into the position wherein the teeth are in engagement with the well bore wall. The slip is constructed so that when the teeth are out of engagement with the well bore wall, the tool with the slips thereon is freely movable through the well bore. The slip is useful in connection with well tools such as packers or anchors and may be actuated by fluid pressure or by mechanical means. The slip teeth are curved and adjacent teeth have different radii of curvature, resulting in a curved bounding profile in a plane containing the central longitudinal axis of the slip.

3,739,850

CROSS OVER ASSEMBLY

Phillip S. Sizer, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Continuation-in-part of Ser. No. 800,539, Feb. 19, 1969. This application June 18, 1971, Ser. No. 154,469

Int. Cl. E21b *43/00*

U.S. Cl. 166—224 **4 Claims**

A well tool system particularly adapted for interconnection of the flow passages of conduits in a well bore, including fluid cross-over assembly for communicating parallel or concentric flow passages. One form of the system for connecting parallel tubing strings includes an H-member providing spaced vertical parallel conduit sections interconnected by a cross-over conduit. Several forms of the H-member include locking recesses in one or both of the spaced conduit sections and a sliding sleeve valve in either or both of such sections for selectively communicating and isolating the conduit sections from each other. Another form of the cross-over device includes at least three tubing sections in parallel spaced relation interconnected by cross-over conduits, locking recesses for servicing well tools in the conduit sections, and a sliding sleeve valve for selectively isolating and communicating the sections through the cross-over conduits. An additional form of the device includes a cross-over member connectible at one end with

spaced parallel tubing strings and at the opposite end with a pair of inner and outer tubing strings and including a cross-over flow passage and sliding sleeve valve for selectively isolating and communicating the flow passages through the body whereby the parallel tubing strings above the body and the flow passages below the body are intercommunicated through the body. A still further form of the device includes a coupling body having a central flow passage and laterally

spaced longitudinal flow passages connected by a cross-over passage with a sliding sleeve valve in the central passages for communicating and isolating the passages as desired. The central passage communicates with central conduits above and below the body while the other passage communicates with annular conduits above and below the body whereby parallel concentric passages are selectively communicated and isolated by the device.

3,739,851

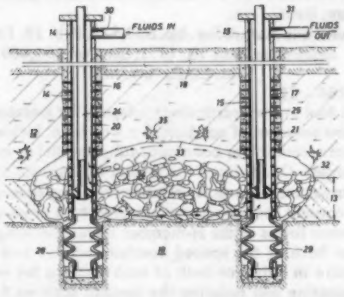
METHOD OF PRODUCING OIL FROM AN OIL SHALE FORMATION

Thomas Noble Beard, Denver, Colo., assignor to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 860,349, Sept. 23, 1969, abandoned, which is a continuation of Ser. No. 770,964, Oct. 28, 1968, abandoned, and a continuation-in-part of Ser. No. 75,009, Sept. 24, 1970. This application Nov. 24, 1971, Ser. No. 201,941

Int. Cl. E21b *43/24, 43/26, 43/28*

U.S. Cl. 166—254 **18 Claims**



A method of producing hydrocarbons and optionally water-soluble minerals from a subterranean or underground oil shale formation containing zone(s) of water-soluble minerals by forming interconnecting cavities or a cavern within said water-soluble mineral-containing oil shale formation by fluid leaching the water-soluble minerals and simultaneously or sequentially flowing a hot fluid into the upper portion of the cavern in order to place the cavern roof including the cavern wall under stress so as to effect oil shale spalling and rubbling and improve recovery of hydrocarbons.

3,739,852

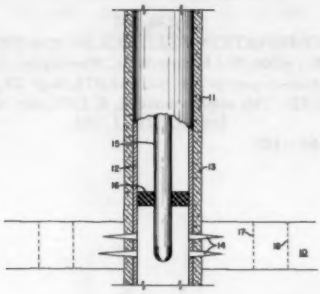
THERMAL PROCESS FOR RECOVERING OIL

Edward G. Woods, and Robert C. West, both of Houston, Tex., assignors to Esso Production Research Company, Houston, Tex.

Filed May 10, 1971, Ser. No. 141,908

Int. Cl. E21b *43/24*

U.S. Cl. 166—303 **7 Claims**



Disclosed herein is a thermal method for recovering oil from a subterranean formation in which a substantially cylindrical heated zone is created in the formation and in which heat can be introduced into the formation at a high rate. In the method a heated fluid (preferably steam) is injected down a well and into the formation at a pressure which is less than the formation breakdown pressure. Preferably, formation fluids are then withdrawn by means of the well. Subsequently, a heated fluid (again, preferably steam) is injected into the formation at a pressure greater than the formation-breakdown pressure. Oil which has been heated by the injected fluids is recovered, preferably by means of the injection well, from the formation.

3,739,853

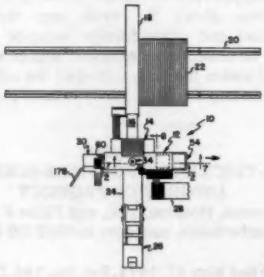
RIG SUBSTRUCTURE AND METHOD OF MOVING THE SAME

Bill B. Wales, Post Office Box 216, Refugio, Tex.

Filed June 4, 1971, Ser. No. 149,994

Int. Cl. E21b *15/00*

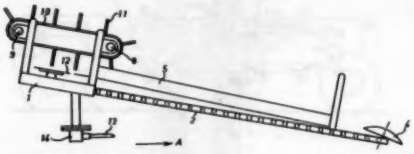
U.S. Cl. 166—315 **16 Claims**



There is disclosed a substructure for a drilling or workover rig that is particularly adapted to be moved away from a Christmas tree in preparation for transport to a new location. A path of travel is selectively provided for the Christmas tree inside the confines of the substructure. When it is desired to move the substructure away from the tree, the path of travel is

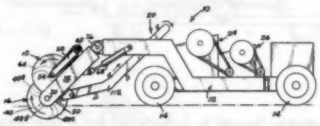
cleared and the substructure is forcibly moved while maintaining the Christmas tree within its path of travel.

3,739,854
DEVICE FOR HARVESTING CABBAGE
Wilhelmus Henricus Johannes Janssen, Scheepvaartweg 3, Roermond, Netherlands
Filed June 7, 1971, Ser. No. 150,577
Claims priority, application Netherlands, Sept. 10, 1970, 7013448
Int. Cl. A01d *25/00*
U.S. Cl. 171—61 **11 Claims**



A device for harvesting cabbages and other similar crops includes a frame carrying two endless conveyors arranged in side by side relation, the conveyors being provided with interleaved projections into which the stems of the crop are directed. The conveyors are inclined upwardly in a direction from the front to the rear of the device. The crop heads are directed onto a guide plate which also tapers up-wardly at a greater angle than the conveyors. The conveyor moves at the same rate as the frame, but in the opposite direction so that the stems are pulled perpendicularly out of the soil where they are then severed from the cabbage head. The severed heads are displaced to the rear of the device with the aid of a second conveyor while the stems may be returned to the ground.

3,739,855
ROCK PICKER
Jon P. Bliss, 12631 N.E. 9th Place, Bellevue, Wash.
Filed June 3, 1971, Ser. No. 149,601
Int. Cl. A01b *43/00*
U.S. Cl. 171—63 **13 Claims**



Apparatus for picking rocks, or similar articles, from the ground including a frame supported for forward movement over the ground, and an elongated rotatable digging head having a plurality of laterally-spaced ground-penetrating teeth thereon. An elongated rotatable clearing head is mounted above the digging head and includes a plurality of laterally-spaced teeth which are positioned to sweep between the digging teeth to remove picked articles therefrom. The digging head is mounted for vertical movement on the frame and is adjustable between a lowered ground-penetrating position and a position raised above the ground. A conveyor adjacent the digging and clearing heads receives articles cleared from the digging head and moves them away from the head and to a crusher in the apparatus.

3,739,856
AERATOR TYPE ATTACHMENT STRUCTURE
Charles A. Ray, 1629 Moyle, Augusta, Kans.
Filed Dec. 9, 1971, Ser. No. 206,302
Int. Cl. A01b *45/02*
U.S. Cl. 172—21 **3 Claims**

This invention is an aerator type attachment structure which may be connected to a power means such as a garden tractor having a pair of aerator assemblies rotatable on contact with the area being worked. More particularly, each of the aerator assemblies are composed of a main support shaft having a plurality of spaced and angularly positioned parallel

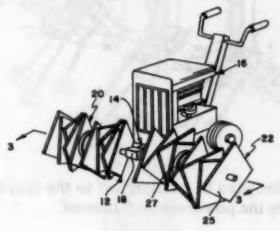
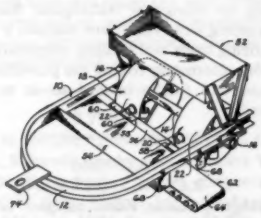


plate members thereupon, each plate member of a square shape to engage the earth for aerating and support purposes on rotation of the support shaft. Each aerator assembly includes an adjustable depth control assembly to adjust the depth of the blade working with the supporting earth.

3,739,857
TURF PLUG REMOVER
James E. Little, 8008 Greeley, Kansas City, Kans.
Filed Sept. 24, 1970, Ser. No. 75,081
Int. Cl. A01b *45/02*
U.S. Cl. 172—22 **7 Claims**



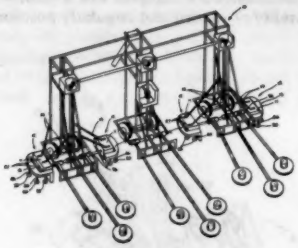
A cylindrical member with radially projecting, tubular plug cutters disposed in opposite pairs and containing pistons interconnected by a rigid rod. As the member rolls over the ground, each cutter is sequentially moved into and out of a ground penetrating position. Movement of a plug upwardly in a cutter relative to the cutter shifts both pistons of the pair upwardly ejecting a previously removed plug from the opposite cutter.

An alternate embodiment without pistons utilizes the force of each succeeding plug severed by a cutter upon penetration of the latter to directly engage a preceding plug ejecting it from the cutter. A conical baffle deflects the ejected plugs from the member.

3,739,858
AGRICULTURAL IMPLEMENT
Perry W. Spell, Roseboro, N.C.
Filed Mar. 20, 1972, Ser. No. 236,085
Int. Cl. A01b *33/00*
U.S. Cl. 172—59 **7 Claims**

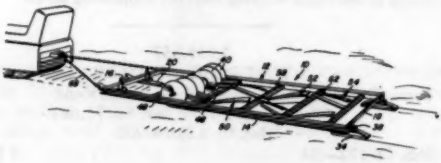
In abstract, a preferred embodiment of the present invention is an agricultural implement used as an earth scarifying

device capable of operating between small, tender plants. This



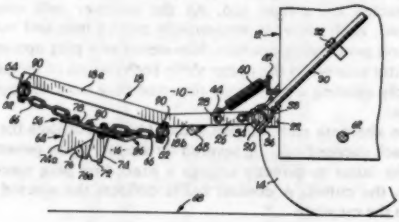
implement is designed to be attached to the rear of a tractor and operated by the power take-off thereof.

3,739,859
SNOW LEVELER
Lawrence K. White, Tomahawk, Heafford Junction, Wis.
Filed July 29, 1971, Ser. No. 167,293
Int. Cl. A01b *5/00*
U.S. Cl. 172—145 **7 Claims**



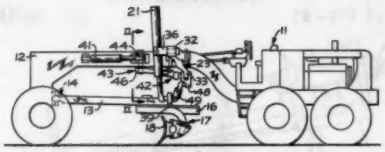
A lightweight snow leveler for redefining snowmobile trails incorporating an elongated rectangular frame having front and rear traveling skis. The frame mounts a leading series of snow pulverizing discs and trailing cooperating sets of snow-shifting blades alternately rolling the pulverized snow inward, then outward and finally inward so as to provide a soft redefined trail.

3,739,860
RAKING IMPLEMENT
Chester D. Rogers, Olathe, Kans., assignor to Jacobsen Manufacturing Company, Racine, Wis.
Filed May 10, 1971, Ser. No. 141,500
Int. Cl. A01b *35/00*
U.S. Cl. 172—612 **12 Claims**



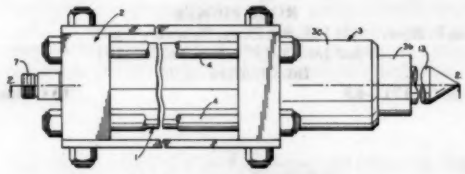
A multi-purpose raking implement, especially adapted for maintenance of golf course sand traps, automatically conforms to the topography of the terrain which is traverses by the use of a long, flexible strip to which the raking elements are attached. Such elements act as combs and slicers to break up, decrust, loosen, smooth and aerate the sand or soil, to gather debris and to destroy weeds that have begun to vegetate and grow.

3,739,861
BLADE LIFT/CENTERSHIFT CONTROLS FOR MOTOR GRADERS
Harold M. Johnson, and Vergil P. Hendrickson, both of Decatur, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Feb. 2, 1971, Ser. No. 111,951
Int. Cl. E02f *3/76*
U.S. Cl. 172—793 **7 Claims**



Motor grader blade controls having direct hydraulic blade lift and centershift linkage in cooperation with lateral tilt linkage which may be either fully hydraulic or semihydraulic in its actuation. The linkage is such as to present negligible obstruction to operator visibility of the blade.

3,739,862
RECIPROCATING AIR HAMMER
Samuel D. Gunning, Cleveland, Ohio, assignor to Kent Air Tool Co., Kent, Ohio
Filed Aug. 11, 1971, Ser. No. 170,810
Int. Cl. B25d *9/18*
U.S. Cl. 173—16 **12 Claims**



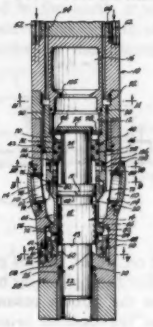
The hammer barrel is supported by a rear header and, in turn, supports a front header. A piston is reciprocated in the barrel under the control of a reversible kick valve. The piston drives a tappet and moil which are supported for reciprocation by the front header. The tappet is continually biased to full extended position by a metering cutt-off valve which is subject continually to live air and which can seat to cut off the air supply to the barrel and stop the hammer when the tappet is substantially fully extended. The metering cut-off valve controls the rate of flow of live air so as to prevent excessively violent responses of the piston thereto. The metering cut-off valve is mounted in, and guided by, an air inlet fitting, the two providing a sub-assembly which can be installed as a unit in the rear header of the barrel. An axially free floating rigid stainless steel rod constrains the metering cut-off valve and tappet to coaxial movement together in substantially fixed axially spaced relation and unseats the metering cut-off valve when the tappet is retracted rearwardly by forcing the moil against the work. One end of the rod abuts the metering cut-off valve and the other end abuts the tappet, but the rod is not fixedly attached to either. The rod is supported for axial reciprocation by a bore in the piston and by a fixed rear bushing in the barrel. A valve spool on the tappet closes a vent when the tappet is extended and opens the vent when the tappet is retracted, thereby controlling venting of the barrel bore.

3,739,863

RECIPROCATING LINEAR HYDRAULIC MOTORS

Maurice Wohlwend, 5001 South 112th Street, Seattle, Wash.

Filed June 2, 1971, Ser. No. 149,217
Int. Cl. B25d 9/00
U.S. Cl. 173—119 33 Claims



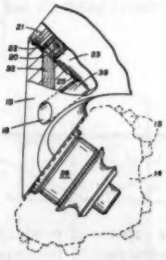
Supplied hydraulic fluid pressure overcomes the force of a spring and moves a valve member, which is biased towards a closed position by the spring, into an open position, opening a passageway to admit the hydraulic fluid to a radial pressure surface on a linear piston. The hydraulic fluid pressure acting on the piston moves the piston against the spring, compressing the spring. When the piston reaches its retracted position hydraulic fluid pressure is added to the spring pressure causing the valve member to move downwardly into a position in which the fluid pressure is released from the pressure surface on the piston, enabling stored energy in the spring to forcibly drive the piston through a power stroke.

3,739,864

PRESSURE EQUALIZING SYSTEM FOR ROCK BITS

George Acker Cason, Jr., Dallas, and James Wesley Simmons, Euless, both of Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Aug. 12, 1971, Ser. No. 171,053
Int. Cl. E21b 9/08, 9/35
U.S. Cl. 175—228 18 Claims



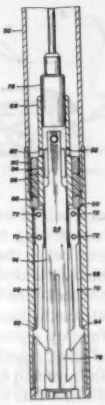
A lubricant reservoir is positioned in each of the three arms of a three cone rotary rock bit to provide lubricant to the bearings located between the cone cutters and the bearing shafts upon which they rotate. A seal is positioned between the cone cutters and the bearing shafts to retain lubricant in the bearing area and to prevent borehole fluids and debris from entering the bearing area. A flexible diaphragm positioned in the lubricant reservoir divides the reservoir into a lubricant portion and a pressure equalizing portion. A vent passage extends from the pressure equalizing portion of the lubricant reservoir to an area on the exterior surface of the bit wherein the borehole fluid pressure on the bit is substantially the same as the borehole fluid pressure on the seal.

3,739,865

WIRELINE CORE BARREL WITH RESILIENT LATCH FINGERS

Tiete O. Wolda, Orillia, Ontario, Canada, assignor to Boyles Industries Limited

Filed June 7, 1971, Ser. No. 150,485
Int. Cl. E21b 43/00
U.S. Cl. 175—244 17 Claims



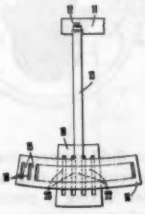
A wireline core barrel system that may be used when drilling up or down, including drilling at various inclinations. Latch fingers that are flexible and resilient are rigidly connected to the core barrel body. The latch fingers are moved into and retracted from a latch seat by a moveable actuator that bends the latch fingers in a first actuator position and allows them to spring back into shape in a second actuator position. The core barrel system provides a predetermined pressure signal indicating latching and blocks fluid flow until the core barrel is properly latched.

3,739,866

DEVICE FOR DETECTING A ROTATING ANGLE

Masamichi Hino, Suita-shi, Osaka, and Rinosuke Yoneda, Yamatokiyama-shi, Nara, both of Japan, assignors to Kubota Tekko Kabushiki Kaisha (Kubota, Ltd.), Osaka, Japan

Filed Oct. 22, 1971, Ser. No. 191,796
Int. Cl. G01g 23/32, 3/14
U.S. Cl. 177—178 5 Claims



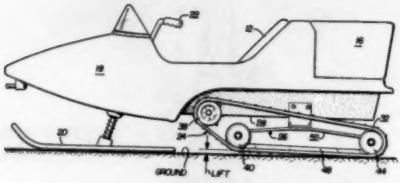
A device for detecting a rotating angle. The device has a scale which rotates around a center of a fulcrum and on which light shielding sections and light passing sections are arranged. A light source provides light which irradiates the scale. A photoconductive element receives light passed through the scale, and a slit-plate which is arranged between the photoconductive element and the scale further passes light from the light passing sections of the scale to the photoconductive element.

3,739,867

SNOWMOBILE

John W. Drawe, Romulus, Mich., assignor to Leisure Vehicles, Inc., Romulus, Mich.

Filed June 10, 1971, Ser. No. 151,809
Int. Cl. B62m 27/02
U.S. Cl. 180—5 R 2 Claims



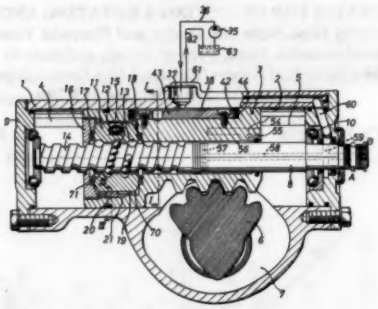
A snowmobile comprises a pair of steerable front skis and a pair of laterally spaced rear driving tracks. The engine and seat are located between and below the level of the top of the tracks. Each track encompasses a driving wheel and a front and rear ground or bogie wheel. The front bogie wheels are mounted to normally maintain a higher elevation than the rear bogie wheels, so that the forward portion of each track is normally spaced above ground level. Another embodiment places the normal position of both front and rear bogie wheels above the ground, with only an intermediate point of ground contact.

3,739,868

FLUID POWER STEERING APPARATUS

Tadashi Maekawa; Akira Suzuki, and Shigenori Haramura, all of Kariya, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Aichi-ken, Japan

Filed Feb. 19, 1971, Ser. No. 116,760
Claims priority, application Japan, Feb. 23, 1970, 45/15452
Int. Cl. B62d 5/08
U.S. Cl. 180—79.2 R 5 Claims



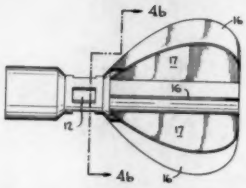
Disclosed herein is a fluid power steering apparatus for vehicles. A hydraulic circuit including a pressure source is connected to a cylinder having a piston slidably engaged therein to define a pair of opposed pressure chambers therein. The piston is connected to a sector-shaft which in turn is connected to the steering road wheels. A rotatable member is confined within the piston and connected to a manually actuated shaft. A pair of control valves mounted in the piston are adapted to be displaced relatively in opposite directions by the rotatable member. The pair of control valves are positioned in the piston during assembly and are fixed normally in the neutral positions thereof to make the assembly easy and simple giving the control valves accurate and durable performance.

3,739,869

APPARATUS FOR THE ATTENUATION OF NOISE FROM UNDERWATER SEISMIC SOURCES

William Harry Mayne, San Antonio, Tex., assignor to Petty Geophysical Engineering Company, San Antonio, Tex.

Filed Jan. 20, 1970, Ser. No. 4,310
Int. Cl. G01v 1/14
U.S. Cl. 181—.5 H 11 Claims



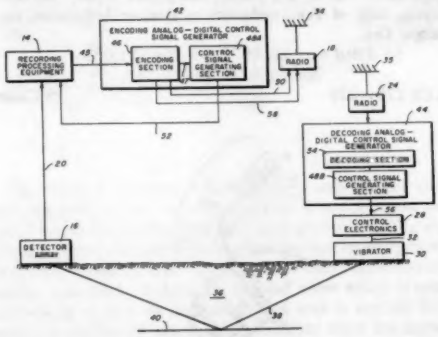
Vanes are mounted on an air gun or other seismic source apparatus to form smaller radii of the air bubbles generated by the source to increase the bubble resonant frequency to a higher frequency than the desired seismic signals thereby enabling unwanted noise to be filtered by conventional means. Different-sized air ports provide different-sized bubbles which collapse at different times introducing destructive interference between bubble collapses. Viscoelastic media on the vanes is an effective damping media because of the increased resonant frequencies of the individual bubbles.

3,739,870

METHOD AND APPARATUS FOR REMOTELY CONTROLLING A SEISMIC VIBRATOR AND RECORDING SYSTEM

Charles R. Pelton, and Kim L. Mitchell, both of Ponca City, Okla., assignors to Pelton Company, Inc., Ponca City, Okla.

Filed Jan. 29, 1971, Ser. No. 110,872
Int. Cl. G01v 1/16, 1/22
U.S. Cl. 181—.5 FS 12 Claims



A seismic vibrator capable of producing a computer controlled signal of predetermined frequency characteristics is remotely initiated using encoding and decoding devices. A similar recording apparatus is simultaneously placed into operation.

3,739,871

MAPPING OF EARTH FRACTURES INDUCED BY HYDRAFRACTURING

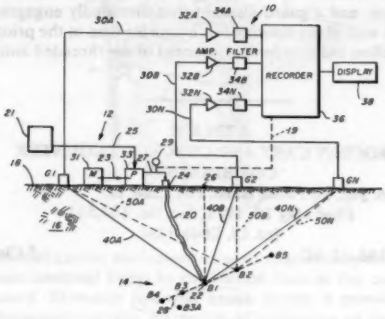
John R. Bailey, Tulsa, Okla., assignor to Senturion Sciences, Inc., Tulsa, Okla.

Filed July 30, 1971, Ser. No. 167,573
Int. Cl. G01v 1/40; E21b 47/026
U.S. Cl. 181—.5 NP 21 Claims

In the process of inducing fractures in the earth in the vicinity of a bore hole, fluid under high pressure is pumped down

the well bore, and a portion of the wall of the well bore is exposed to this pressure at a known position in the earth. As the fluid pressure is increased, the rock will part, or rupture, and form a fracture. As the fluid rapidly flows into this fracture the pressure sharply falls, and this drop in pressure is transmitted to the surface, where at some time later, the pressure in the well fluid at the surface will show a corresponding drop.

Sensors are placed in the earth around the well bore to receive the seismic wave that is generated by the rock fracture. The times of arrival of the seismic wave can be determined from a display, and the average velocity of seismic waves in the earth can be determined.



As the flow of fluid continues, the pressurized fluid flows into the fracture, causing it to widen and extend to greater distances from the well bore. This extension is discontinuous and intermittent, involving additional rock fractures and corresponding seismic signals. The times of arrival of the later fracture signals are determined. From these determinations and the previously determined velocity of seismic waves, the position in the earth of the successive fractures are determined.

3,739,872

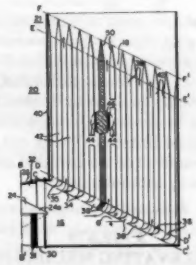
GAS TURBINE EXHAUST SYSTEM

Robert E. McNair, Swarthmore, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 27, 1971, Ser. No. 147,527

Int. Cl. B64d *33/06*

U.S. Cl. 181—33 HB **5 Claims**



An efficient exhaust system in which the fluid from a turbine is discharged into a diffusing portion. The discharged fluid then flows into an elongated transition portion and is directed at the downstream end thereof into a silencer portion by a plurality of staggered turning vanes. The discharged fluid is turned at constant velocity, and a constant area is maintained between the flow path in the transition portion and the flow path in the silencer portion. There is an additional diffuser at the downstream end of the silencer portion.

3,739,873

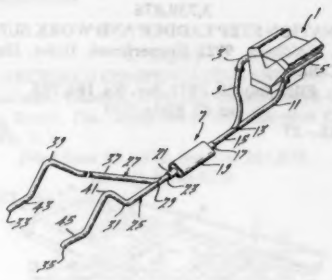
DUAL OUTLET EXHAUST SYSTEM

James J. Shaughnessy, Pleasant Lake, Mich., assignor to Tenneco Inc., Racine, Wis.

Filed Sept. 3, 1971, Ser. No. 177,773

Int. Cl. F01n *7/08*

U.S. Cl. 181—36 B **8 Claims**



An exhaust system for internal combustion engines comprises flow balanced dual outlet conduits.

3,739,874

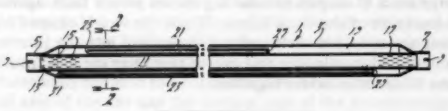
MUFFLER WITH TUNING TUBE

Charles I. Plaga, III, Michigan Center, Mich., assignor to Tenneco, Inc., Racine, Wis.

Filed Oct. 12, 1971, Ser. No. 188,121

Int. Cl. F01n *1/00*

U.S. Cl. 181—48 **9 Claims**



A muffler for silencing sound in gas, such as an exhaust system muffler, has a plurality of C-shaped tubes that are tuned to attenuate predetermined frequencies.

3,739,875

ESCAPE DEVICE

William Clark-Padwicki, 5425 Ewart St., Burnaby, British Columbia, Canada

Filed Jan. 10, 1972, Ser. No. 216,635

Int. Cl. A62b *1/14;* **B65h** *59/14*

U.S. Cl. 182—6 **13 Claims**

Device to effect controlled descent down a rope of an incapacitated person carried in a harness secured to the device. The device has a series of spaced grooved rollers on one side of the rope, the rollers being aligned in a plane containing the rope and staggered between opposing series of coplanar rollers, the rope following a sinusoidal path between both series of rollers. The rollers are coupled together to ensure equal peripheral speeds when device is moved relative to rope. Automatic brake responsive to descent speed brakes rollers to

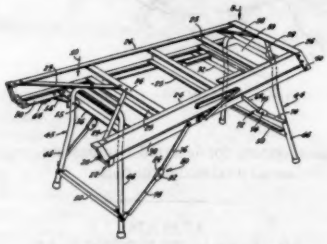
maintain predetermined descent speed. Gearing between rollers and brakes permits relatively light braking force to control a relatively heavy person. Number, size and spacing of rollers maintains sufficient arc of contact of rope on rollers to reduce slippage of rope when rollers are braked. Additional hand operated brake stops descent.

3,739,876

COMBINATION STEP LADDER AND WORK SUPPORT

Ronald A. Goldberg, 9922 Cornerbrook Drive, Huntington Beach, Calif.

Filed July 28, 1971, Ser. No. 166,785
Int. Cl. E04g *1/30*
U.S. Cl. 182—27 **29 Claims**



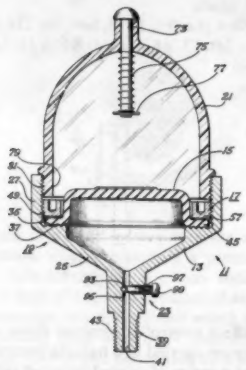
A dual purpose foldable stepladder comprising a step-equipped front frame hingedly connected to a back prop frame having two pairs of foldable auxiliary legs on the back prop frame to support the folded ladder in horizontal position for use as a work bench. Each of the two pairs of auxiliary legs comprises a U-shaped tubular leg means which folds against the backside of the back frame. When the two U-shaped leg means are unfolded their upper ends extend into the interior of the folded step ladder and one of them ties the two frames of the folded step ladder together.

3,739,877

GREASE CUP

Paul B. Oliveri, Houston, Tex., assignor to Industrial Specialties Corporation, Englewood, N.J.

Filed Nov. 9, 1971, Ser. No. 197,067
Int. Cl. F16n *11/04*
U.S. Cl. 184—45 R **4 Claims**



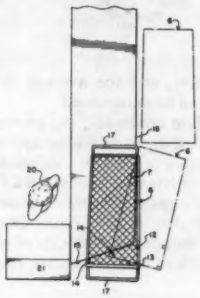
A lubricating device for automatically feeding lubricant from a reservoir to an element such as a bearing, characterized by a hollow housing having a lubricant injection fitting and relief valve for controlled filling, being connectable with the element by way of an axial lubricant discharge passageway, and having an annular sealing shoulder with anti-slip means for retaining a flange of a diaphragm in place; a distensible elastic diaphragm having a peripheral sealing flange seated on said annular sealing shoulder; an annular threaded ring that threadedly engages the internal threaded wall of the housing for being screwed inwardly to compressively retain the peripheral sealing flange of the diaphragm against the annular sealing shoulder independently of any guard element; and a rigid guard element disposed about the diaphragm for protection. Also disclosed are preferred embodiments wherein the lubricating device is provided with a slip-off cover; an externally adjustable flow control valve; an indicator means for indicating the degree of fill of the diaphragm; and a guard element that threadedly engages the threaded wall of the housing but is shorter than in the prior art so as to allow independent adjustment of the threaded annular ring.

3,739,878

GROCERY CART AND CHECKOUT COUNTER COMBINATION

Walter M. Jay, 16 Tweed Road, Fox Lake, Ill.

Filed May 18, 1971, Ser. No. 144,531
Int. Cl. E04h *3/04*
U.S. Cl. 186—1 AC **5 Claims**



In the present cantilever grocery cart and checkout counter combination the entry end of the overhanging counter, which the basket in the upper half of the cart is adapted to overlie in the checkout operation, extends at an acute angle to define a cam surface to guide the cart laterally into the aisle alongside the checkout counter by sliding abutment of correspondingly, angularly spaced upright parts on the cart with the angled end of the counter as the customer pushes or pulls the cart forward, the wheels on the cart being of the usual caster type to swivel as necessary to obtain the initial lateral movement of the cart.

To further facilitate properly servicing all of the carts in the flow of cart traffic past the checkout counter while insuring against oversight in checking out merchandise, the entry end portion of the counter with the acute angled end cam surface in one form is defined by an open horizontal frame permitting the checkout person to see down through the upper basket to the lower basket and be certain to check out any merchandise deposited in the lower level of the cart that might otherwise be eventually hauled away without payment.

3,739,879

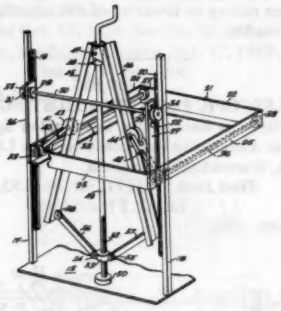
TORSION BAR ELEVATING MECHANISM FOR SELF-LEVELING DISPENSERS

Bruce F. House, Coral Gables, Fla., assignor to Shelley Manufacturing Company, Miami, Fla.

Filed Nov. 12, 1971, Ser. No. 198,227
Int. Cl. B66b *11/04*
U.S. Cl. 187—24 **9 Claims**

Torsion bar mechanism for resiliently elevating the carrier of a self-leveling dispenser is described. A horizontal carriage arranged for vertical movement with respect to a support structure, in cantilever relation with respect thereto, has

secured thereto one end each of a pair of horizontally-extending, spaced, paralled, torsion bars, the outer ends of which have affixed thereto mutually inwardly-extending lever arms journaled to the outer ends of which are guide wheels constrained to move along respective elongated guide channel members angularly disposed with respect to the vertical



direction of carrier movement so as to substantially uniformly increase torsional stress in the torsion bars as the carrier is depressed. Manually operable crank means is provided for simultaneously varying the angles of inclination of the guide channels for wide-range adjustment of the resilient reactive force per linear unit downward movement of the carrier.

3,739,880

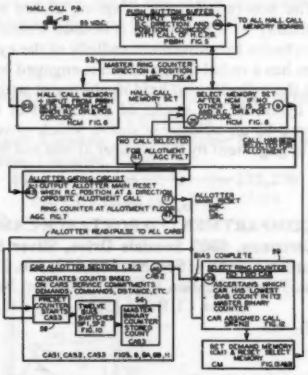
ELEVATOR CONTROL FOR OPTIMIZING ALLOTMENT OF INDIVIDUAL HALL CALLS TO INDIVIDUAL CARS

Gerald D. Robaszkiewicz, Toledo, Ohio, assignor to Reliance Electric Company, Euclid, Ohio

Filed June 10, 1971, Ser. No. 151,778

Int. Cl. B66b *1/18*

U.S. Cl. 187—29 R **69 Claims**



A system for assigning individual hall calls to individual elevator cars on the basis of service requirements imposed on the cars wherein signals associated with calls are time multiplexed and service requirements are represented by predetermined numbers of signal pulses which can be correlated to the anticipated delay imposed on the car in reaching the landing of the call and/or in travel commitments beyond the landing of the call. Pulse series for the several service requirements such as distance of the car from the call landing, car calls and hall calls assigned the car between the car and the call landing, and car calls and hall calls assigned the car beyond the call landing, are sequenced on a per floor basis as by a car travel scanning means so that one floor is considered at a time as to calls and then as to car travel distance so that no overlap of pulses is generated. Pulse series for car status representing conditions imposed upon the car as degree of loading, car in slowdown, door open, and car in acceleration are also sequenced to avoid overlap of pulses for the several factors. Pulse counts are accumulated for each of a plurality of cars to indicate the car best suited to serve the call to be assigned as that having the pulse count representing the least service commitment.

3,739,881

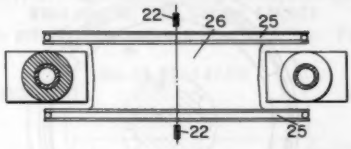
RECESSED COMPENSATING SHEAVE

Janis Cliderman, Teaneck, N.J., and Charles Heyd Clarkson, Madeira Beach, Fla., assignors to Otis Elevator Company, New York, N.Y.

Filed June 12, 1972, Ser. No. 261,678

Int. Cl. B66b *5/28*

U.S. Cl. 187—94 **6 Claims**



A compensating sheave arrangement used in an elevator system permits the use of both a single counterweight buffer and a single elevator car buffer, notwithstanding the compensated rope segments on either side of the compensating sheave are vertically disposed and apply non-eccentric forces on both the car and the counterweight. A recessed compensating sheave is used having a recess dimensioned so as to form vertical passages on each side thereof, the passage on one side receiving the car buffer and on the other, the counterweight buffer. The sheave is designed so as to have its pitch diameter substantially equal to the horizontal distance between the vertical axis of the car and the vertical axis of the counterweight and thereby result in an arrangement whereby the compensating rope segments ascending from the sheave are substantially vertically disposed.

3,739,882

SHOCK ABSORBING DEVICE ESPECIALLY FOR VEHICLES

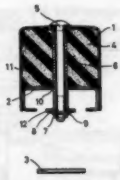
Kurt Schwenk, and Kurt Rupprecht, both of Wolfsburg, Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany

Filed Apr. 8, 1971, Ser. No. 132,330

Claims priority, application Germany, Apr. 9, 1970, P 20 16 855.2

Int. Cl. F16f *7/12*

U.S. Cl. 188—1 C **10 Claims**



Shock absorbing device having an outer and an inner section supported for relative movement with respect to each other in the direction of a shock force, an intermediate section placed into the space formed by the outer and inner sections and comprising a material having volume-elastic properties, the elastic material is treated with a material having adhesive properties for delaying the return of it into the original posi-

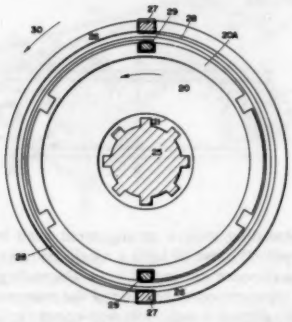
tion due to its elastic properties after a shock force causing compression of the elastic material has ceased, and wherein the outer section comprises an elastic material a portion of which is formed to receive the volume-elastic intermediate section, and the inner section lying closer to the object to be protected from the shock is made from a rigid profile and supports the outer section containing the volume-elastic material.

3,739,883

DISC BRAKE WITH RESILIENT TORQUE CONNECTION

Glenn R. Marin, Ransomville, N.Y., assignor to The Carborundum Company, Niagara Falls, N.Y.

Filed Apr. 1, 1971, Ser. No. 130,136
Int. Cl. F16d *55/00*
U.S. Cl. 188—71.1 **6 Claims**



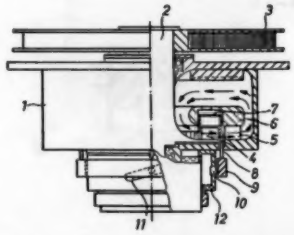
A flexible transmission band for applying braking torque force to the driven friction members of a disc brake. The band functions in such a manner as to reduce shear and impact loading on the brake members, replacing this at least partially by compressive and friction loading on the outer periphery of the brake discs. Shear loading can be reduced further by providing discs with wider rims which permit correspondingly wider and stronger keyway slots.

3,739,884

MEANS AND METHOD FOR REGULATING A HYDRAULIC ENERGY ABSORBING DEVICE

Lars H. Myhr, Norrkoping, and Lars-ake E. Svensson, Aby, both of Sweden, assignors to Borgs Fabriks Aktiebolag, Norrkoping, Sweden

Filed May 6, 1971, Ser. No. 140,853
Claims priority, application Sweden, May 11, 1970, 6391/70
Int. Cl. F16f *57/04*
U.S. Cl. 188—296 **1 Claim**



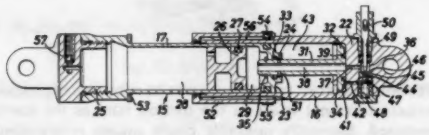
A device for regulating the driving torque and energy absorption in hydraulic energy absorbing means such as employed in aircraft arresting mechanisms, consisting in a liquid reservoir housing in which a bladed rotor is rotative, said rotor having its blades surrounded by fixed vanes of a curvature different from that of the blades of the rotor. A ring is mounted above the blades, the ring having an annular groove or channel in which a channel-shaped capsule is positioned, the capsule being adjustable up or down in the groove, a rotative adjustment ring is mounted on a part of the housing and an outer ring carries rods that enter the housing to contact with the capsule, and the outer ring has parts engaging in guide means on the inner ring, whereby rotative adjustment of the inner ring causes raising or lowering of the capsule with respect to the rotor blades.

3,739,885

TELESCOPIC POSITION ADJUSTING DEVICES

Wilfred Nicholas Bainbridge, Leamington Spa, England, assignor to Automotive Products Company Limited, Leamington Spa, Warwickshire, England

Filed June 15, 1971, Ser. No. 153,227
Int. Cl. F16d *63/00*
U.S. Cl. 188—300 **5 Claims**



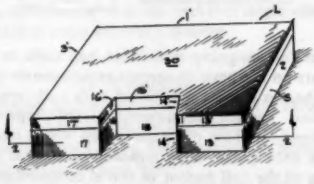
An aircraft seat having an angularly adjustable back and a telescopic position adjusting device arranged to hold the seat back in any position to which it is set. The telescopic position adjusting device comprises a hollow plunger slidable in a closed ended cylinder. A floating piston divides the hollow plunger into two chambers one of which is filled with liquid and communicates with a passage in the closed end of the cylinder via the bore of a tubular stem which projects through an aperture in the plunger end wall. The other chamber is filled with compressed gas. A non-return valve controls liquid flow through the passage between the tubular stem bore and the liquid filled annular cylinder space surrounding the tubular stem. The non-return valve is spring closed and may be opened manually by a pin which is housed within the closed end of the cylinder for movement radially of the cylinder. The tubular stem has a radial flange which is engaged by a clip ring mounted in the cylinder and held in abutment with the closed end of the cylinder. The stroke of movement of the plunger can be altered by an adjustable sleeve which provides a stop surface for engagement by the plunger at one end of its stroke.

3,739,886

COMPARTMENTED PORTABLE CASE

Norman Kertzman, 8802 Sundale Drive, Silver Spring, Md.

Continuation-in-part of Ser. No. 108,373, Jan. 21, 1971, abandoned. This application July 19, 1972, Ser. No. 273,286
Int. Cl. B65d *13/04*
U.S. Cl. 190—49 **16 Claims**



A portable case containing a main large compartment adjacent to the hinged sides of the main body of the case and the cover therefor, and a pair of smaller symmetrical compartments on the opposite side with a gap therebetween. The handle for the case is mounted within the confines of the gap so that a convenient hold thereon may be had while permitting

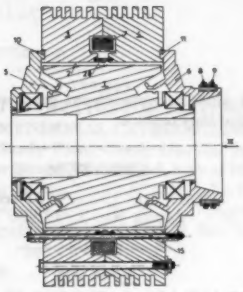
the case to be handled or stacked without the protrusion of the handle beyond the outlines of the case, thereby protecting the handle against damage.

3,739,887

ELECTROMAGNETIC POWDER COUPLINGS

Gabriel Ruget, Saint Etienne, Loire, France, assignor to Creusot-Loire, Paris, France

Filed Oct. 19, 1970, Ser. No. 82,055
Claims priority, application France, Oct. 17, 1969, 6936127
Int. Cl. F16d *27/00*
U.S. Cl. 192—21.5 **9 Claims**



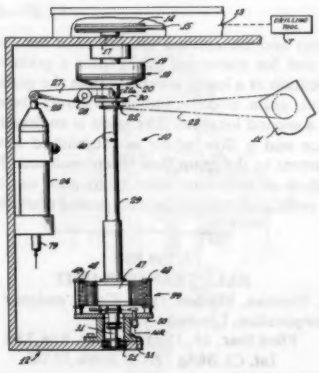
An electromagnetic powder coupling comprising an outer rotor formed by two pole piece halves centered on lateral cheeks of an amagnetic material, an excitation coil is housed between the two pole piece halves which define an air gap around an inner rotor, the centering of the pole piece halves being effected by a convex cylindrical face machined on each of these pole piece halves in the immediate vicinity of the air gap in order to fit on the cylindrical face opposite a peripheral ring provided for this purpose on the corresponding cheek, while, on the other hand, the connection of the two pole piece halves in the middle of the air gap is ensured, without direct contact between them, by an amagnetic axially-slidable coaxial sleeve which is separated from the coil by a free space.

3,739,888

APPARATUS FOR DRIVING A RECORDING INSTRUMENT

James J. Brady, Glendale, Calif., assignor to Technical Oil Tool Corporation, Glendale, Calif.

Filed Jan. 31, 1972, Ser. No. 222,270
Int. Cl. F16d *21/00*; E21b *47/04*
U.S. Cl. 192—48.92 **11 Claims**



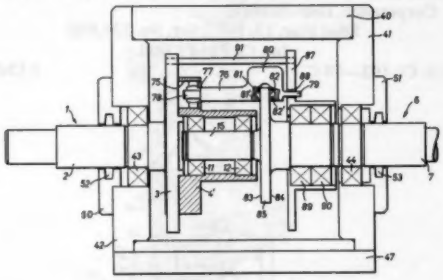
Mechanism for driving an odometer for logging footage drilled by an oil well drill or the like, and including a clutch driven by a measuring line, a shaft driven through the clutch, a sleeve telescoped onto the shaft and carrying a sprocket that drives the odometer through a chain, and a one-way coupling for turning the sleeve only as the shaft is driven forwardly. The one-way coupling includes a cage which turns with the sleeve, and gearing acts between the cage and the shaft as a spline coupling during forward rotation, but during reverse rotation of the shaft, the cage is held stationary and the gearing rotates a signal arm from a normal, idle position into a blocking position over an orifice to block air flow therefrom and create a pressure signal for actuating a cylinder for disengaging the clutch, and shifting a plunger of a driller's control valve. The signal arm is returned to its idle position, and the clutch remains disengaged until the plunger is pushed in manually to reactivate the driving mechanism.

3,739,889

OVERRUNNING CLUTCH

Bernhard Frey, Steigstrasse 94, Schaffhausen, Switzerland

Filed Apr. 21, 1971, Ser. No. 136,055
Claims priority, application Switzerland, Apr. 21, 1970, 5920/70
Int. Cl. F16d *41/00*
U.S. Cl. 192—45.2 **4 Claims**



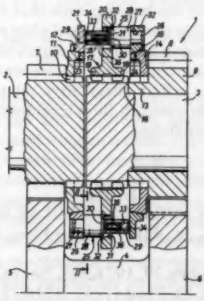
An overrunning clutch in which the clutching means is in the form of a long lever arm positively supported at one end and having offset transverse extending clutch surfaces at the other end. Rotation of the driving part produces large forces on the offset clutch surfaces against corresponding rotatable surfaces attached to the driven part.

3,739,890

POSITIVE SYNCHROMESH GEARS

Giovanni Nolli, Brescia, Italy, assignor to Fiat Societe Per Azioni, an Italian Joint Stocks Company, Turin, Italy

Filed June 3, 1971, Ser. No. 149,422
Int. Cl. F16d *23/06*
U.S. Cl. 192—53 E **3 Claims**



A positive synchromesh gear device of the free ring type has, in the known way, two synchronizing rings which

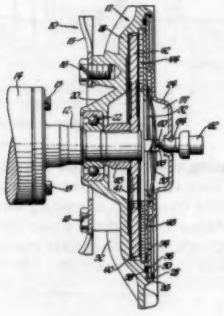
cooperate with respective frusto-conical coupling surfaces of a driving member and a free member respectively, the latter being rotatable on a driven member and permanently coupled by gearing to the driving member. A number of pins extend axially from each ring towards the other ring and pass through respective bores in a coupling member which is rotatable with but slidable axially on the driven member to connect the driven member selectively either to the driving member for direct drive or to the free member for drive through the gearing. Each pin has inner and outer cylindrical coaxial portions interconnected by a portion tapered towards the free end of the pin, and the pins are normally disposed in a rest position with their outer cylindrical portions within the respective bores of the coupling member. The invention provides a spring-biassed member in each pin, urged into frictional contact with the opposite ring to urge the two rings constantly apart into contact with the respective coupling surfaces, at the same time causing the first ring to tend to draw the second ring along in rotation with it, thereby keeping the outer cylindrical portion of each pin laterally in contact with part of the bore in the coupling member.

3,739,891

VISCOUS FLUID CLUTCH

Frank E. La Flame, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 13, 1972, Ser. No. 234,066
Int. Cl. F16d *35/00*
U.S. Cl. 192—58 C **8 Claims**



The drawings illustrate an improved viscous fluid clutch including a rotatable housing having an enclosed working chamber, an engine-driven clutch plate and a control plate mounted in the working chamber, spring means connecting the control plate to the housing such that the housing rotates with the control plate and the control plate is able to move axially within the housing toward the clutch plate in response to the action of a temperature-responsive wax-filled power element to effectuate a fluid shear drive relationship therewith, with a substantially constant fluid level being maintained during all operative conditions.

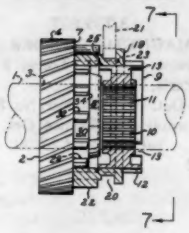
3,739,892

REPLACEABLE ANNULAR GEAR

Joseph C. Liberty, Jr., 4216 Grindley Place, Dearborn Heights, Mich.

Filed July 30, 1971, Ser. No. 167,640
Int. Cl. F16d *11/10*; B21d *53/28*
U.S. Cl. 192—67 R **2 Claims**

Worn teeth in a shifting transmission are replaced by an annular replacement gear which is slipped over the worn teeth after they have been ground down to a smooth annulus. The



teeth of the annular replacement gear are longer than the worn teeth that they replace.

ERRATUM

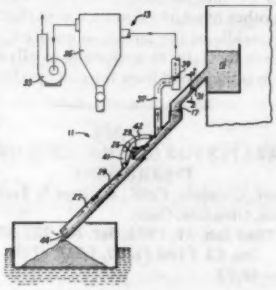
For Class 192—70.27 see:
Patent No. 3,739,896

3,739,893

METHOD AND APPARATUS FOR TRANSFERRING GRAIN

Henry H. Kaufmann, Saint Louis Park, Minn., assignor to Cargill, Incorporated, Minneapolis, Minn.

Filed Jan. 31, 1972, Ser. No. 221,919
Int. Cl. B65g *11/00*
U.S. Cl. 193—17 **13 Claims**



Apparatus and the method are provided for restricting air pollution and for conveying grain from a grain source to a desired location at a lower elevation than the grain source. In the method, grain is conveyed downwardly from the grain source to a second location. The grain is enclosed during the conveyance and a flow of air is established upwardly and countercurrent to the grain flow when enclosed. The air flow is established at sufficient velocity to pick up dust from a discharge point and remove the dust during grain flow.

3,739,894

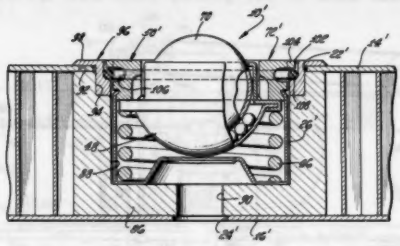
BALL TRANSFER UNIT

Ronald C. Hinman, Mission Viejo, Calif., assignor to Western Gear Corporation, Lynwood, Calif.

Filed Mar. 15, 1971, Ser. No. 124,234
Int. Cl. B65g *13/00*; B60b *33/08*
U.S. Cl. 193—35 MD **3 Claims**

A ball transfer unit including load spring means, locking means for releasably maintaining said unit within a structure

and stop means for limiting the displacement of the ball when



a load is positioned thereon.

3,739,895

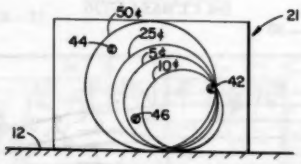
METHOD AND APPARATUS FOR TESTING COINS EMPLOYING DIMENSIONAL CATEGORIZING MEANS

Guy L. Fougere, Sandy Pond Road, Lincoln, and John L. Rothery, 8 Tucker Street, Marblehead, both of Mass.

Continuation-in-part of Ser. No. 91,871, Nov. 23, 1970, which is a continuation-in-part of Ser. No. 812,127, April 1, 1969, abandoned. This application Aug. 16, 1971, Ser. No. 171,922

Int. Cl. G07f 3/02

U.S. Cl. 194—100 A 17 Claims



A coin selector and a method of coin selection are disclosed which utilize a coin presence sensor array including a primary sensor and a series of secondary sensors, which together with combinatorial circuitry provide signals indicative of the size category of a coin and signals indicative of the acceptance ratio of the coin and compare the signals with predetermined values for acceptable coins.

3,739,896

FRICTION CLUTCH

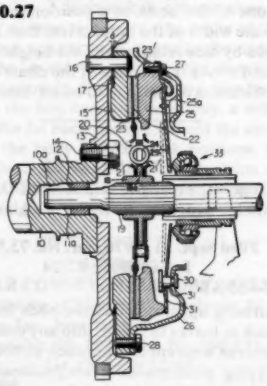
Kinji Shono, Wakoh, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Dec. 20, 1971, Ser. No. 209,757

Claims priority, application Japan, Dec. 28, 1970, 45/132196

Int. Cl. F16d 13/44

U.S. Cl. 192—70.27 5 Claims



An improved dry-disc friction clutch for motor vehicle power transmission systems is disclosed, which is adapted to be disengaged completely and immediately when a forward drive condition is to be established from idling. The friction clutch includes a flywheel which is made up of cooperating main and subsidiary driving plates which are normally spaced from each other by suitable spring means. The subsidiary driving plate is positively moved away from the friction-engaging plate when the clutch pedal is depressed and the clutch spring is moved to disengage the pressure plate from the friction-engaging plate.

3,739,897

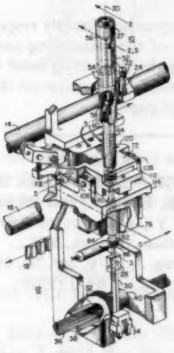
INTERNAL ACTUATOR FOR IMPACTING A SERIAL PRINTER PRINT HEAD

Constantine J. Pateuk, Natick; Harold M. Shneider, Weston, Steven P. Cahill, Revere, and James G. Bath, Hudson, all of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Dec. 1, 1970, Ser. No. 94,034

Int. Cl. B41j 1/32

U.S. Cl. 197—55 12 Claims



A novel internal actuator for impacting the print head of a high speed serial printer with a print medium is disclosed. The internal actuator engages the interior of a rotatably and axially positionable print head and causes the latter to impact the print medium. The internal actuator includes a pivotal yoke portion and a neck portion, the latter of which extends into the interior of the print head. The pivotal yoke portion provides a fixed point about which the print head moves while the neck portion provides a firm mounting for both the positioned print head and the positioning shaft structure which is contained therein.

3,739,898

TYPEWRITES WITH SINGLE SPRING TO PROVIDE LETTERSPACING AND PRINTING

Craig E. Rooney, 4511 West 78th Terrace, Overland Park, Kans.

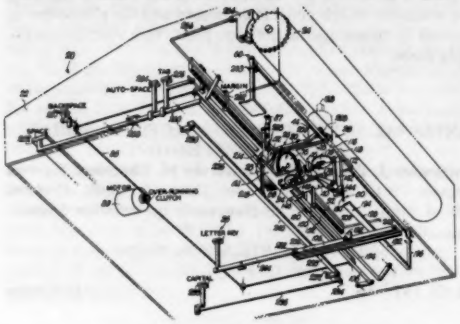
Filed Jan. 14, 1971, Ser. No. 106,370

Int. Cl. B31j 1/40

U.S. Cl. 197—55 39 Claims

An imprinting apparatus in the general form of a typewriter has shiftable carriage and imprinting assemblies and a stationary platen for imprinting on a sheet of paper or the like by the swinging movement of a vertically extending, cylindrically-shaped imprinting head toward the platen as the imprinting and carriage assemblies shift along a path of travel juxtaposed with the platen. The apparatus employs a windable mainspring and drive gear mechanism operably coupled with a releasable spacing mechanism to incrementally shift the carriage and imprinting assemblies in an advancing direction along the path of travel, under the constant bias of the mainspring; an operating assembly for operably coupling the imprinting assembly with the drive gear mechanism, whereby the imprinting head is swung toward and away from the platen during the shifting of the imprinting and carriage assemblies a

single incremental distance along the path of travel corresponding to the spacing of a single character, with swinging of the imprinting head being directly responsive to and effected by the shifting of the imprinting and carriage assemblies in the advancing direction along the path of travel; and a rotat-



ing and elevating mechanism directly responsive to and actuated by the shifting of the imprinting assembly toward the platen for positioning the imprinting head in a predetermined position wherein a selected character on the head may be imprinted on the sheet of paper.

3,739,899

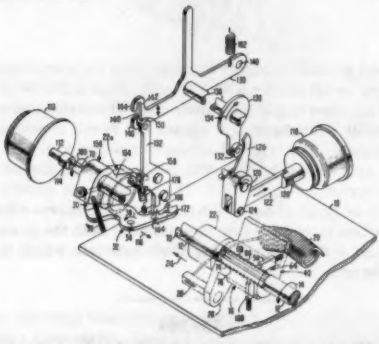
CARRIAGE INDEXING MECHANISM

Philip A. Brumbaugh, Endicott, and Richard H. Harrington, Vestal, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 3, 1970, Ser. No. 60,463

Int. Cl. B41j *19/00*

U.S. Cl. 197—82 **7 Claims**



A carriage for a printer or the like comprises a movable carrier which is indexed by cooperating, sliding and stationary racks lying just beneath the circumference of an axially fixed carrier support shaft. Drive and hold latches on the carrier are spring biased into contact with respective racks. Solenoid oscillation of the sliding rack one column position causes like incrementation of the carrier. Angular rotation of the shaft moves the drive and hold latches from their racks into contact with smooth shaft surfaces, causing automatic return of the carrier under dashpot action to the first column print position.

3,739,900

APPARATUS FOR CONTINUOUSLY PANNING DOUGH

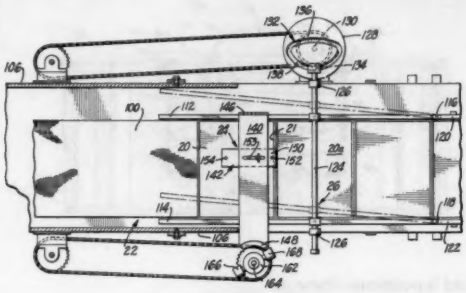
Victor F. Gugler, 8920 Helen Avenue, Sun Valley, Calif.

Filed Mar. 15, 1971, Ser. No. 124,052

Int. Cl. B65g *47/26*; B23q *7/00*

U.S. Cl. 198—19 **4 Claims**

Method and apparatus for continuously forming and placing a series of dough pieces in a predetermined array on a pan by stepping the pan back and forth and in a forward direction



under the forward end of a continuously moving dough conveyor.

3,739,901

BISCUIT HANDLING MACHINERY

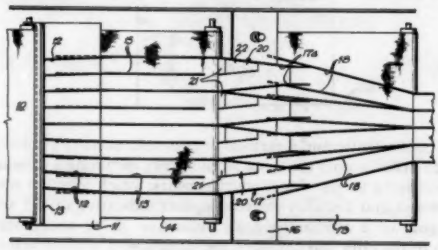
Stanley William Crispe, Liverpool, England, Assignor to Simon-Vicars Limited, Lancashire, England

Filed Oct. 28, 1971, Ser. No. 193,261

Claims priority, application Great Britain, Nov. 12, 1970, 53,820/70

Int. Cl. B65g *47/26*

U.S. Cl. 198—30 **10 Claims**



Lane reducing means of the kind referred to comprising an inclined chute having side walls, the width of the chute tapering from at least the width of two biscuit lanes at its upper end to approximately the width of one biscuit lane at its lower end, characterized in that a raised biscuit supporting platform is provided over part of the surface of said chute on one side thereof, said platform extending from the wider end of the chute, where it is adapted to receive biscuits entering the chute from one of the lanes, to a position part way down the chute where the width of the latter is less than the width of two biscuits in side-by-side relationship, the height of said platform at its lower end above the surface of the chute being at least as great as the thickness of a biscuit to be traversed thereby.

3,739,902

PATTERN MAKER

Charles E. Ingram, Freeland, and Ronald D. Elson, Merrill, both of Mich., assignors to Baker Perkins Inc., Saginaw, Mich.

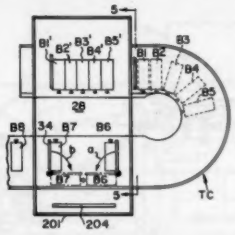
Filed Sept. 21, 1970, Ser. No. 73,996

Int. Cl. B65g *47/24*

U.S. Cl. 198—33 AB **43 Claims**

Pattern forming apparatus and methods for grouping food products, such as loaves of bread, into any one of a plurality of different patterns wherein an approach conveyor, for successively conveying products in a longitudinal path, communicates with a reorienting member for receiving a first group of products from the approach conveyor and disposing them in end-for-end reversed position relative to incoming products

on the approach conveyor. Pusher mechanism is provided for selectively, transversely pushing one or more additional



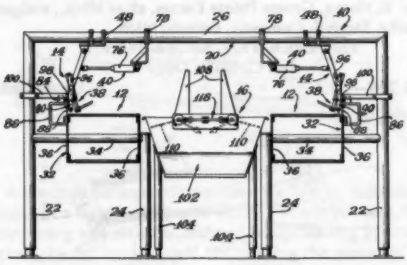
products on the approach conveyor into abutting relation with the reoriented products to join with them in a common plane product.

3,739,903

APPARATUS FOR DIVERTING ARTICLES FROM A PATH OF TRAVEL

Richard F. Doerfer, Waterloo; Homer N. Leymaster, Cedar Falls, and Richard R. Neebel, Waterloo, all of Iowa, assignors to Doerfer Corporation, Cedar Falls, Iowa

Filed Sept. 9, 1971, Ser. No. 178,915
Int. Cl. B65g *59/02*
U.S. Cl. 198—35 **13 Claims**



Apparatus for diverting severed articles, such as spare ribs, carried on top of another article, such as a hog carcass. A conveyor belt carries the hog carcass along a path of travel with previously severed spare ribs resting thereon. A diverting device is positioned laterally of the spare ribs as the conveyor continuously carries the spare ribs and the hog carcass along their path of travel. An air cylinder is operatively connected to the diverting device. A limit switch detects when the leading edge of the hog carcass and spare ribs are in such a position that the diverting apparatus is opposite the spare ribs, and then activates the air cylinder to move the diverting means to engage and transversely divert the spare ribs from the conveyor and from the hog carcass. Preferably, a holding device bears down on the fat back portion to hold the entire hog carcass, including the belly and fat back portions, from lateral movement on the conveyor during the diversion of the spare ribs therefrom. Means are also provided for receiving the ejected spare ribs.

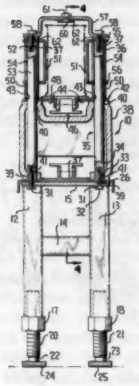
3,739,904

MODULAR CONVEYOR SUPPORT ASSEMBLY

Robert F. Windstrup, Chicago, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Oct. 20, 1971, Ser. No. 190,721
Int. Cl. B65g *15/60*
U.S. Cl. 198—204 **27 Claims**

This disclosure relates to a modular conveyor support assembly adapted for use with different types of conveyors, such as steel chains, plastic chains, cables, etc., which offers stiffness in bending and, due to a unique design and standardization of parts such as guides, locating pins, conveyor run sup-



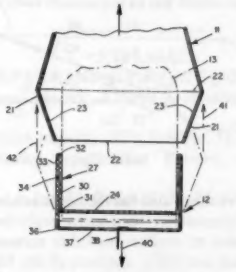
ports, etc., a minimum of manual labor and the time incident thereto is necessary for assembly or disassembly. The open construction facilitates cleaning, which is vital in certain food processing installations.

3,739,905

CONNECTION DEVICE FOR CONTAINERS AND THE LIKE

Ward, James S., 1902-A Plymouth St., Philadelphia, Pa.

Filed Aug. 5, 1971, Ser. No. 169,324
Int. Cl. B65d *13/00, 85/00*
U.S. Cl. 206—46 FR **20 Claims**



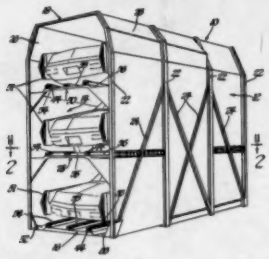
A connection device is provided, carried by one member, such that, upon insertion into an opening of another member, the device expands outwardly such that it is wedges against extraction, but with the device being adapted such that, upon actuation of a release member, a transverse size reduction is effected, permitting removal of the one member from the opening, with the connection device also passing through the opening of the other member, along with the one member. Particularly, a closure for containers is provided, with the closure having side portions of folded link-like construction, adapted, when inserted into the container opening, for transverse or lateral expansion, to wedge against a diverging opening wall.

3,739,906

VEHICLE POSITIONING AND RESTRAINT APPARATUS

Walter Cwycyshyn, Detroit, and Elwyn L. Kitchen, Jr., Troy, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 8, 1971, Ser. No. 187,625
Int. Cl. B60p *7/08*; B61d *45/00*; B65d *85/62*
U.S. Cl. 206—65 R 3 Claims



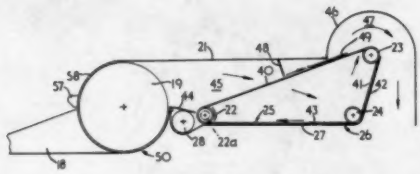
A vehicle positioning and restraint apparatus having a latching mechanism and parallel guide rails which slidably receive tie-down members attached to the underside of a vehicle for holding the vehicle in position during shipment by a carrier.

3,739,907

AGRICULTURAL MACHINE

John Kilgour, Gravenhurst; Peter Charles John Payne, Clophill; John Stewart Reid, Billericay, and Erice George Everett, Chelmford, all of England, assignors to Rotary Hoes Limited, West Horndon, Essex and The Governors of the National College of Agriculture Engineering, Silsoe, Bedfordshire, England

Filed May 14, 1971, Ser. No. 143,411
Claims priority, application Great Britain, May 21, 1970, 2,450/70
Int. Cl. B07b *9/00*
U.S. Cl. 209—26 3 Claims



A combined threshing and harvesting machine, particularly for rice, has a separator for separating grain from waste. The seaparator includes an endless movable screen to which the grain and waste are carried in a stream of air. The waste is carried from the separator in a stream of air and the screen conveys the grain away for discharge from the separator.

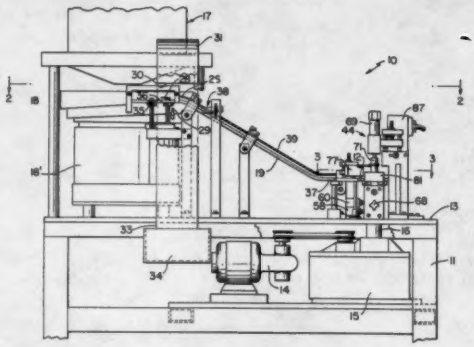
3,739,908

TESTING APPARATUS AND METHOD FOR SCREW-LIKE ITEMS

James C. Gunther, Greensburg, Pa., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Nov. 16, 1971, Ser. No. 199,242
Int. Cl. B07c *5/06*
U.S. Cl. 209—75 16 Claims

Apparatus for automatically and serially testing screw or rivet items each having a head and a shank portion, the apparatus having a rotatable table carried by a frame for serially moving the items through a plurality of testing stations of the apparatus. A plurality of testing devices are carried by the frame so as to be located adjacent the table and respectively at the stations to test the items as the table moves the items



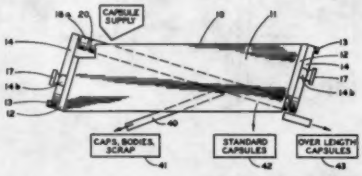
respectively to the stations where the devices are located. One of the devices has means for testing for maximum overall length of the items. Another of the devices has means for testing for minimum overall length of the items.

3,739,909

CAPSULE HANDLING APPARATUS AND METHOD

Carl C. Garland; Edmund J. Kwarsick, both of Detroit, and Oscar B. Noren, Grosse Pointe Farms, all of Mich., assignors to Parke, Davis & Company, Detroit, Mich.

Filed Oct. 6, 1971, Ser. No. 186,972
Int. Cl. B07b *13/04*
U.S. Cl. 209—90 7 Claims



Apparatus and means are provided for handling articles, particularly tubular, cylindrical or elongated articles such as pharmaceutical capsules and the like, comprising an inclined slide or trough formed by trough-defining surfaces including the circumferential surfaces of rotating roll means adapted to move the articles lengthwise in single file down the trough and, if desired, for rectification and/or for gravity-sorting with respect to width and/or length size at one or more points along the trough. The apparatus can be used for any of various operational steps or combinations of steps such as conveying, sorting, rectifying, etc.

3,739,910

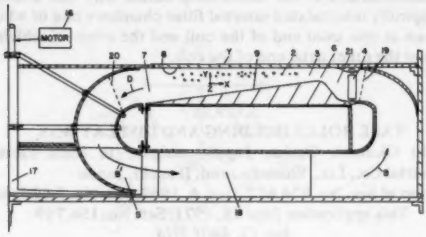
VORTEX CLASSIFIER

David G. Wilson, Cambridge, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Mar. 4, 1971, Ser. No. 120,856
Int. Cl. B04c *1/00*
U.S. Cl. 209—144 12 Claims

A vortex classifier for classifying particles that differ from one another in at least one of shape, mass or density. The classifier contains a circular vortex chamber wherein a fluid is introduced at the periphery to flow in a generally tangential direction. The fluid spirals inward toward the center of the circular chamber and out. The cross dimensions of the chamber (i.e., the thickness of the chamber) varies from small to large

from the periphery toward the center, respectively, the chamber volume being thereby controlled to control the radial component of the fluid velocity thereof at radially displaced



regions and, in turn, to control the characteristics of particles which tend to seek and remain traveling in stable circular paths at such regions.

3,739,911

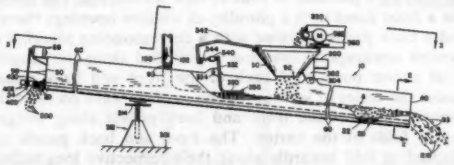
POOL-LESS AUGER-SEPARATOR FOR MATERIALS OF DIFFERING SPECIFIC GRAVITIES

William D. Patch, c/o Bill's Coal, Inc., Welch, Okla.

Continuation-in-part of Ser. No. 78,256, Oct. 5, 1970, abandoned. This application Dec. 14, 1970, Ser. No. 97,837

Int. Cl. B03b *3/30*

U.S. Cl. 209—460 **10 Claims**



A machine for separating pieces of a heavier substance from pieces of a lighter substance both of which will sink in water, comprising an upwardly inclined trough having in it an auger upheld by the trough itself for carrying the pieces of heavier substance upwardly while the pieces of lighter substance which can be as large as lump coal are pushed by the force of turbulent, pool-less, free-flowing water out of an open lower end of the trough closely adjacent to the upper side of the auger.

3,739,912

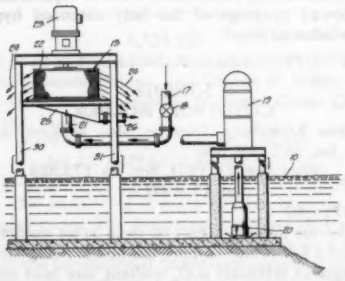
SCREENING AND AERATING CONCENTRATOR

Robert P. Miller, Jr., Pasadena, Calif., assignor to Sweco, Inc., Los Angeles, Calif.

Filed May 6, 1971, Ser. No. 140,916

Int. Cl. B01d *33/02*

U.S. Cl. 210—63 **11 Claims**



There is disclosed herein a method and system of screening and simultaneously aerating wastewater, such as storm water overflow containing untreated sewage. The method involves one or more high-rate rotating screen concentrators wherein the influent is fed to the interior of a generally cylindrical, rapidly rotating screen. The concentrator is constructed to permit dispersion and atomization of effluent for increasing exposed fluid surface area and for improving contact thereof with air to increase the dissolved and/or entrained oxygen in the effluent. This may be accomplished by allowing a relatively unobstructed fall of the effluent out-wardly into a container, storage tank, treatment or storage lagoon or the like. The dissolved oxygen aids aerobic digestion and the entrained oxygen aids in frothing of the effluent for subsequent floatation and separation of fine solids and oils. The concentrated material which does not pass through the screen may be piped to a treatment facility.

3,739,913

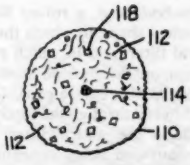
DEVICE FOR FENCING AND ABSORBING CONTAMINATING OIL SPILLS ON WATER

Theodore Oscar Bogosian, Somerville, N.J., assignor to Johns-Manville Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 805,465, March 10, 1969, abandoned, which is a continuation-in-part of Ser. No. 748,977, July 31, 1968, abandoned. This application July 16, 1970, Ser. No. 55,338

Int. Cl. E02b *15/04*

U.S. Cl. 210—242 **9 Claims**



An elongate body of oil absorbing material and flotation material including longitudinal reinforcing or strengthening means whereby a plurality of bodies can be linearly disposed in end-to-end relationship for temporarily fencing oil spills on water for retention and absorption of the oil.

The body contents comprise oil absorbing fibers — natural or synthetic or combinations thereof — and may include a flotation material interspersed therewith to aid buoyancy of the body even after saturation of the fibers by oil.

3,739,914

SELF-CLEANING FILTER ELEMENTS

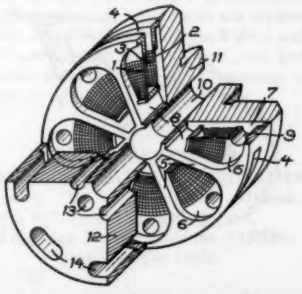
Samuel Georges Moatti, 17 rue Gutemberg, 92 Boulogne, France

Filed July 22, 1971, Ser. No. 165,107

Claims priority, application France, Aug. 27, 1970, 7031389

Int. Cl. B01d *29/38, 25/32*

U.S. Cl. 210—333 **7 Claims**



A filtering element for a self-cleaning filter in the form of a disc having a chamber made in its thickness and limited by two

filtering gauzes or the like disposed parallel to the plane of the disc, wherein separate chambers are arranged on the outside of the gauzes, one chamber on one side of a gauze communicating with the corresponding chamber on the side of the other gauze by two transverse conduits, whilst the chamber or chambers between the gauzes communicate with the outside of the disc by radial conduits.

3,739,915

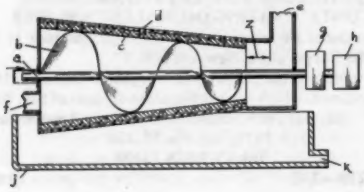
INTERNAL PRESSURE PRECOAT FILTER

Edward C. Kehoe, deceased, late of Essex County, N.J., and Jean West Kehoe, executrix, 11 Hillcrest Place, North Caldwell, N.J., assignors to Johns-Manville Products Corporation, New York, N.Y.

Filed Oct. 2, 1970, Ser. No. 77,569

Int. Cl. B01d *33/02*

U.S. Cl. 210—394 **6 Claims**



In a preferred embodiment, a rotary filter or dewatering device having a conical shape in which the precoat is on the inside of the conical filter, and in which pressure within the cone and/or vacuum on the outside surface of the conical filter creates a differential pressure causing a feed within the conical filter to be filtered through the filter, and the filtrate to be collected outside of the conical filter. A revolving knife having a spiral contour and being concentric to the conical filter, fractionally advances axially into the conical filter at a predetermined rate to cut away a surface layer of the precoat, the spiral contour serving also to force the sludge of filtered solids to an outlet from said conical filter. The invention also includes the process of precoating, filtering under a differential pressure, and cutting away the precoat from within the conical filter.

3,739,916

FILTER ELEMENT FOR FILTERING OF LIQUIDS

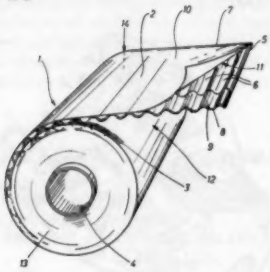
Fritz Cub, Schwabach; Paul Kleinert, Heinz Lammermann, both of Nuernberg, and Hans Schacht, Stuttgart, all of Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany

Filed May 4, 1971, Ser. No. 140,059

Claims priority, application Germany, Aug. 8, 1970, P 20 39 482.5

Int. Cl. G01d *27/06*

U.S. Cl. 210—493 **9 Claims**



A coiled strip of filter material includes a pair of superimposed longitudinally coextensive strip portions each having a longitudinally extending free edge and a transversely spaced connected edge connected with the respectively other strip portion. A plurality of at least substantially parallel transverse corrugations is provided in only one of these strip portions and the convolutions of the coiled strip define with one another two spirally intercalated internal filter chambers one of which is open at one axial end of the coil and the other of which is open at the other axial end of the coil.

3,739,917

TAPE ROLLS HOLDING AND DISPLAY BOX

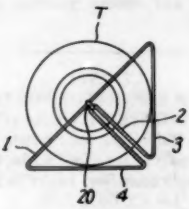
Seiichi Okutani, Osaka, Japan, assignor to Nitto Electric Industrial Co., Ltc., Shimohozumi, Ibaraki, Japan

Division of Ser. No. 874,652, Nov. 6, 1969, Pat. No. 3,623,601.

This application June 25, 1971, Ser. No. 156,719

Int. Cl. A47f *5/11*

U.S. Cl. 211—40 **4 Claims**



A selectively openable and closeable display box or carton for holding a plurality of rolls of tape for display. The carton has a front panel with a plurality of window openings therein and a back panel provided with a corresponding plurality of window openings. A fold line is provided along the longitudinal center portion of each of the front and back panels across the series of window openings. Side walls connect the opposite ends of the front and back panels along integral corner folds of the carton. The front and back panels are adapted to fold inwardly along their respective longitudinal fold lines, whereby they are moved toward each other and releaseably held with their fold lines adjacent one another so that rolls of tape can be captively held in the opposed window openings.

The principal form of this application, however, is a modified one adapted primarily for display use only after merchandise shipping, wherein no end panels are used, and one of said windowed panels is disposed in a completely folded-upon-itself condition along the longitudinal center line so that the opposite windowed panel is fully extended to become a hypotenuse of a triangular shaped cross-section formed in cooperation with the previously generally opposed, non-windowed side panels, which subsequently for this form are disposed at right angles to one another. The longitudinal fold line of the windowed panel, which is completely folded upon itself, engages the corresponding fold line of the other windowed panel to help hold it in the hypotenuse extended form, and in such latter condition the rolls of tape displayed in the carton are readily removeable from or replaceable within the windowed openings of the fully extended hypotenuse forming windowed panel.

3,739,918

CLOTH BOLT HOLDER

Oliver Dean Kreitzburg, Glencoe, Mo., assignor to Fabricmaster, Inc, St. Louis, Mo.

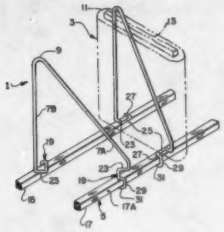
Filed Aug. 23, 1971, Ser. No. 173,858

Int. Cl. A47f *7/18*

U.S. Cl. 211—44 **4 Claims**

A holder for holding a bolt of cloth in an upright display position on a horizontal support, the holder being formed of a single length of relatively stiff, resilient wire bent on itself to form an acute angle whereby the sides of the angle constitute a pair of legs which lie in the same plane and which are adapted

to be inserted endwise into a bolt of cloth between the layers of cloth and the mandrel for supporting the bolt. These legs have means integrally formed on their free ends engageable with the support for holding the holder on the support, for



preventing tipping of the holder laterally with respect to the plane of the legs, for permitting angling of the holder relative to the support, and for permitting sliding movement of the holder lengthwise of the support.

3,739,919

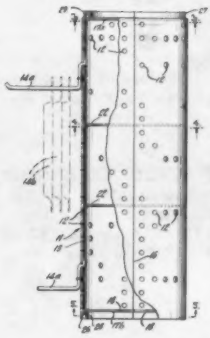
DISPLAY DEVICE APERTURED FOR HOLDING SUPPORT HOOKS

Arthur Hochman, 555 Elizabeth Avenue, Newark, N.J.

Filed July 2, 1971, Ser. No. 159,400

Int. Cl. A47f *5/10, 7/00*

U.S. Cl. 211—57 **4 Claims**



A display device consisting of an elongated structure having apertures for the reception and retention of support hooks is manufactured as a molded one-piece element having two complementary sections which can be locked together. The design is such that the two portions are joined along one edge of each in a living hinge. The elongated structure can be stacked to increase the display area.

3,739,920

FIXTURE FOR SUPPORTING ROTARY DISPLAY RACKS

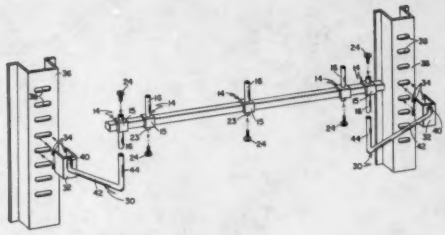
Bernard S. Coblentz, Paxton, and Vincent F. White, Lunenburg, both of Mass., assignors to Foster Grant Co., Inc., Leominster, Mass.

Filed Mar. 15, 1971, Ser. No. 124,144

Int. Cl. A41f *5/02;* **A47k** *10/04*

U.S. Cl. 211—123 **6 Claims**

A fixture for supporting as many as three or more vertical rotary display racks. The fixture generally includes a pair of floor or counter, or wall supported base members, a substantially horizontal bar mounted on the base members and a plurality of specially constructed members slidably mounted on the support bar, each of which rotatably supports a vertical shaft of a rotary display rack. There is provided at each end of the horizontal support bar a pair of members, preferably identical to the vertical shaft supporting members, but



mounted in inverted positions on the horizontal bar to mount the bar on its base members.

3,739,921

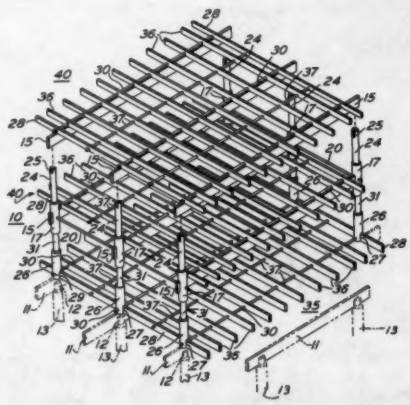
FIXTURE FOR HEAT TREATING FURNACES

Charles J. Schmidt, Philadelphia, Pa., assignor to Abar Corporation, Feasterville, Pa.

Filed Oct. 1, 1971, Ser. No. 185,634

Int. Cl. A47f *5/10;* **F16b** *7/00*

U.S. Cl. 211—177 **8 Claims**



A fixture for heat treating furnaces is disclosed having a frame composed of horizontal round rods and horizontal rectangular bars and vertical rods with vertical tubular connector units having transverse slots through which the horizontal bars extend and openings normal to the bars through which the horizontal rods extend, the vertical rods being slotted at their ends to engage the horizontal bars. Wires are employed to hold the structure in assembled relation. Horizontally disposed work piece racks are supported by the horizontal bars. The components of the frames and racks are preferably of low specific heat material, and preferably of molybdenum but may be of tungsten, tantalum, columbium and their alloys, or of graphite.

3,739,922

SWAY-ARREST SYSTEM IMPROVEMENT

Shuji Hasegawa, Tai 6914-2, and Hideaki Kawata, Tsuchigahara 377, both of Tamano, Japan

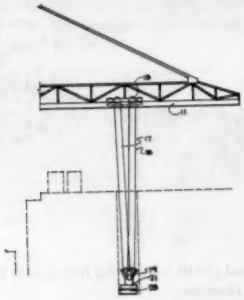
Filed Mar. 10, 1972, Ser. No. 233,586

Int. Cl. B66c *19/00*

U.S. Cl. 212—125 **6 Claims**

A sway arrest system for arresting sway of a suspended load relative to the lifting platform of a crane having a trolley movable along the gantry of the crane and having reeving ex-

tending to a load engaging means having at least one pair of opposed sheave nests mounted therein. The load sheaves being arrayed so that the reeving passing over each of the



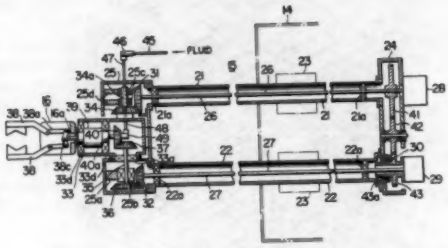
nests of sheaves is acted upon by the spaced sheaves to produce compensating forces to stabilize the load and to arrest sway thereof.

3,739,923

MANIPULATOR

Hisao Totsuka, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki-shi, Japan

Filed Feb. 17, 1971, Ser. No. 116,061
Claims priority, application Japan, Feb. 20, 1970, 45/14212
Int. Cl. B25j *9/00*
U.S. Cl. 214—1 BC **5 Claims**



In a manipulator, a first drive shaft extends from a first actuator means to a first gear case through one of two parallel cylinders of a manipulator arm and is coupled to a second gear case rockably supported by the first gear case via a pair of bevel gears for causing a working head or "hand" of the manipulator arm to undergo a bending or wrist-flexing motion. A second drive shaft extends through the other cylinder from a second actuator means to the first gear case and is coupled to a power cylinder rotatably supported in the second gear case via pairs of bevel gears for causing the aforesaid working head to undergo a swivelling motion. There is further provided a third gear case in which are housed a train of gears for imparting the rotation of the first drive shaft to the entire unit of the second actuator means with which is locked the second drive shaft during operation of the first actuator means only.

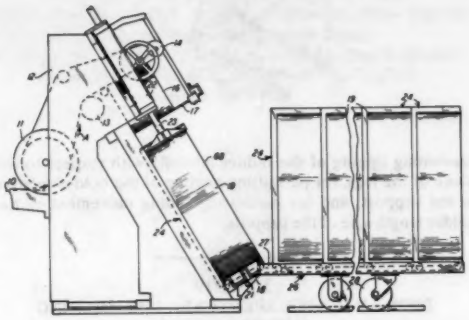
3,739,924

APPARATUS FOR BUNDLING, TRANSPORTING, AND FEEDING SHEETS

Anton R. Stobb, R.D. 1, Pittstown, N.J.

Filed July 2, 1971, Ser. No. 159,329
Int. Cl. B65g *57/03, 59/08*
U.S. Cl. 214—6 H **16 Claims**

Apparatus for bundling, transporting, and feeding sheets of paper which are preferably in a folded or signature form to be assembled and form a magazine, book, or the like. The sheets are handled by a delivery device, such as a folding machine, and are placed into discrete stacks which are subjected to a compressing device. The stack is formed at an inclined angle and a clamp is applied to the compressed stack. The clamp is shown to have rollers which permit the clamped stack to be wheeled to a transport device such as a cart which is shown. The cart with a plurality of the clamped stacks is then moved to a feeding device which receives the clamped stack in an



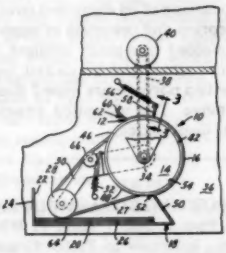
inclined attitude, and the clamp is removed from the sheets and the sheets are then singly fed into the feeding device which causes the sheets to be collated into an assembled magazine or book. The clamp is shown to be of two extendable and contractable pieces which have a self-locking device for holding the clamp in the contracted position when it is clamping the sheets, and the locking device is releasable when the stack is released in the feeding device.

3,739,925

CARD STACKING MECHANISM

Lloyd W. Martin, Minneapolis, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jan. 12, 1972, Ser. No. 217,125
Int. Cl. B65h *29/38*
U.S. Cl. 214—7 **5 Claims**



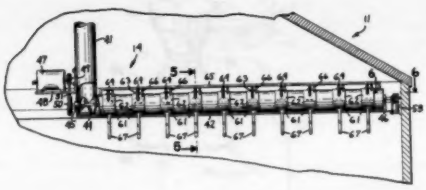
A mechanism for stacking cards including a fixed guide plate partially around the periphery of a rotating drum for directing cards fed between the guide plate and the drum about the drum into a receiving tray. The mechanism includes a belt extending around the drum and around a pulley on an arm biased to urge the belt portion on the pulley toward the tray to propel cards discharged from the guide plate to a stacked condition against an end wall of the tray.

3,739,926

GRAIN DRYING AND STORAGE APPARATUS

Harlan J. Easton, Route 3-Box 607, Blooming Prairie, Minn.

Division of Ser. No. 849,941, Aug. 12, 1969, Pat. No. 3,624,921. This application May 20, 1971, Ser. No. 145,494
Int. Cl. B65g 65/32
U.S. Cl. 214—17 CA 11 Claims



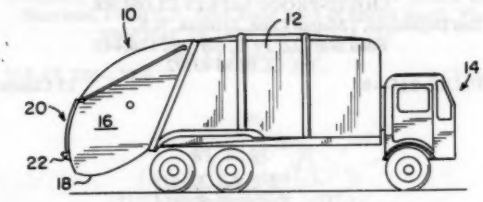
A grain drying and storage bin is disclosed that receives and evenly distributes grain over an upper floor grid where the grain is heated and dried. After drying is completed, the grain is transferred to a lower cooling floor by actuation of a linkage mechanism that simultaneously opens a plurality of openings in the upper grid.

3,739,927

MECHANISM FOR REFUSE COLLECTION VEHICLES

Cyril R. Gollnick, Oshkosh, Wis., assignor to Leach Company, Oshkosh, Wis.

Filed Sept. 10, 1971, Ser. No. 179,506
Int. Cl. B65f 3/00
U.S. Cl. 214—83.3 8 Claims



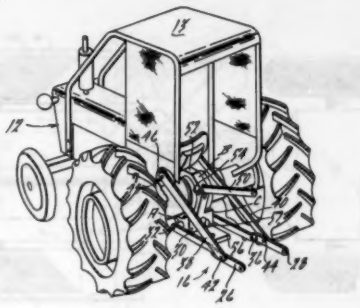
An improved mechanism for refuse collection vehicles of the type which include a hopper for receiving loose material and a packer plate and operating mechanism therefor disposed within the hopper. The improved device includes a packer plate mounted for pivotal movement at one end thereof, having a combination guide and pivot bar extending transversely thereof generally centrally of the plate, guide ways formed in the side walls of the hopper for receiving the end portions of the bar, and an operative connection between the bar and the piston and cylinder for applying movement to the packing plate. With the improved mechanism, there is no interference between those parts of the mechanism which impart movement to the plate and the parts which are used to position the plate with respect to guideways extending generally parallel to the bottom surface of the hopper. In operation, the plate is moved to the rear of the hopper with the plate edge being disposed adjacent the bottom wall, and thereafter, the plate is retracted while being guided so as to maintain the plate edge adjacent the bottom wall as the plate advances and gradually undergoes a pivoting motion. Upon completion of the packing stroke, the plate guide is released from the guideways for repositioning to repeat the packing cycle.

3,739,928

THREE-POINT HITCH LOG SKIDDING ATTACHMENT

Louis E. Randall, Box 117, Mio, Mich.

Filed Mar. 18, 1971, Ser. No. 125,587
Int. Cl. B60p 1/00
U.S. Cl. 214—85.5 20 Claims



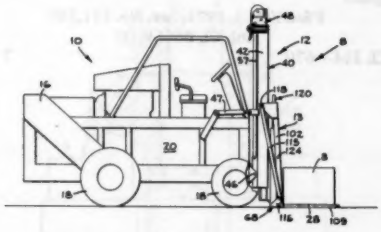
There is herein disclosed a new and novel device comprising, in combination, a tractor with a three-point hitch assembly mounted on the rear end thereof, a frame connected to the hitch assembly, an elevated roller assembly mounted on the frame having a fairlead roller rotatable about a horizontal axis, and a power operated winch for pulling a cable over the fairlead for hauling a timber load to the vehicle and subsequently towing the load during movement of the tractor.

3,739,929

STORAGE VEHICLE WITH BIN DUMPER

Leon R. McRobert, Ocoee, Fla., assignor to FMC Corporation, San Jose, Calif.

Filed Feb. 22, 1972, Ser. No. 228,023
Int. Cl. B60p 1/46
U.S. Cl. 214—313 4 Claims



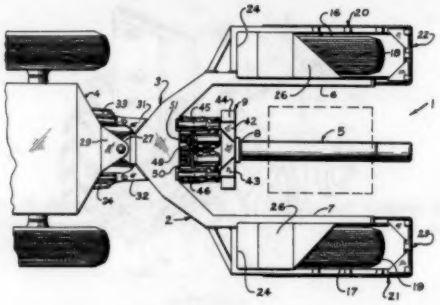
A mobile vehicle having a container storage tunnel for storing a plurality of empty or filled containers and transporting them between a pick-up area and a dumping station. The vehicle includes a fork lift unit having a dumping mechanism with a bin clamp thereon for elevating and dumping a product from the bins or containers. The fork lift unit may lift the containers into positions to be stored in the tunnel, to be loaded on a flat bed truck to be dumped. When moved to the dumping position, the dumping mechanism tilts the containers in excess of 90° about pivot points adjacent the ends of the fork lift tines, and the clamp mechanism is activated to positively lock the container to the dumping mechanism during this tilting operation. The empty containers may then be lowered directly onto the ground or the flat bed of a truck, or may be lowered upon a carriage which moves at least several containers into the storage tunnel.

3,739,930

COIL TRANSPORTING STRUCTURE

Thomas Lee Richard Hardwick, Route 3, Box 105, Olathe, Kans.

Filed July 29, 1971, Ser. No. 167,098
Int. Cl. B66c 23/00
U.S. Cl. 214—390 9 Claims



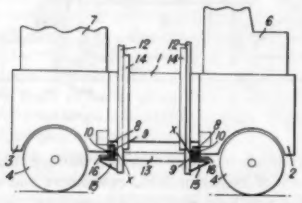
A mobile structure for transporting coils of metal strip, wire, and the like, includes a generally U-shaped mobile frame having a forward end portion hingedly connected to a prime mover and transversely spaced side members extending rearwardly from the forward end portion and an elongated ram positioned between the transversely spaced side members of the frame and having one end mounted on a ram support operatively connected to the frame for movement of the ram between a retracted carrying position and extended loading and unloading positions.

3,739,931

SIDE LOADERS

George Neville Bowman-Shaw, Toddington, England, assignor to Lancer Boss Limited, Leighton Buzzard, Bedfordshire, England

Filed Feb. 1, 1971, Ser. No. 111,587
Int. Cl. B66f 9/10
U.S. Cl. 214—670 7 Claims



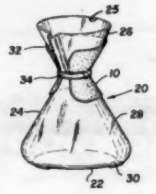
A side loader vehicle having a transverse recess extending across the vehicle from one open side between front and rear body portions, a load carrying mast mounted on means movable along guides at each side of the recess, a tie member e.g. a roller, rotatably mounted with respect to the mast and in rolling engagement with a surface extending along each side of the recess on the opposite side of the guide to the mast to prevent the front and rear body portions splaying longitudinally of the recess at the recess.

3,739,932

PROTECTIVE HOLDER

Virginia Westover, Kentfield, Calif., assignor to Chemex Corporation, New York, N.Y.

Filed Jan. 3, 1972, Ser. No. 214,672
Int. Cl. B65d 23/10
U.S. Cl. 215—100 A 8 Claims



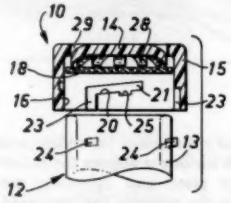
A protective holder adapted to be positioned proximate the circular neck of a filter-type coffee maker having bowed-in side walls. The holder includes a pair of planar portions each having a concave inner margin. These two portions are joined adjacent their respective concave inner margins and mating fasteners are fastened to these two portions so that the holder can be secured in position about the neck of the coffee maker. The radius of curvature of the joined concave inner margins is selectively chosen to be substantially larger than the radius of curvature of the circular neck of the coffee maker so that when the holder is fitted about the neck of the coffee maker, the two portions of the holder will automatically be displaced from their storage position wherein they are substantially parallel, to their use position wherein they will engage the bowed-in side walls of the coffee maker proximate the neck thereof.

3,739,933

LIQUID-PROOF SAFETY CLOSURE

Ben Degaetano, 1 Megan Lane, Armonk, N.Y.

Filed Mar. 22, 1971, Ser. No. 126,443
Int. Cl. B65d 43/02
U.S. Cl. 215—9 12 Claims

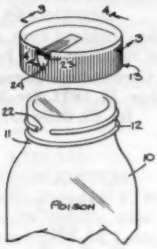


A safety closure cap/container combination includes cooperating lugs and cam surfaces on the outer surface of the container neck and the inner surface of the side wall of the cap to provide relative axial movement of the cap toward the container on rotation of the cap in a tightening direction and relative separation of the cap and the container on rotation of the cap in the opposite direction. Detent notches in the cam surfaces serve to retain the cap in its closed position and to require both axial movement and rotation of the cap for its removal from the container. A cap liner is provided within the cap for sealing engagement with the end of the container neck. A set of fingers is integrally formed with the end wall of the cap to press against the cap liner and to be flexed upwardly on tightening of the cap on the container so as in turn to maintain the liner in sealing engagement with the end of the container neck. Aligned openings are provided in the end wall of the cap to facilitate manufacture.

3,739,934
TAMPER-PROOF BOTTLE CLOSURE

Leonard Bruno, Farmingdale, N.Y., assignor to Shore Plastics, Inc., Freeport, N.Y.

Filed Nov. 8, 1971, Ser. No. 196,551
Int. Cl. B65d 55/02
U.S. Cl. 215—9 5 Claims

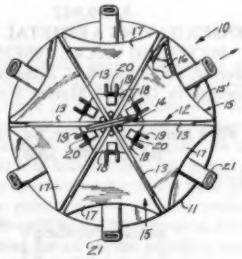


A tamper-proof bottle closure, the bottle being provided with a neck or other outlet having an external threading. Cooperating with the neck is an internally threaded screw cap, the cap having a radial slot occupied by a flexible strip, one end of which is anchored at the center of the cap, the other end having a dependent latching tooth which normally lies against the inner surface of the cap within a gap in the internal threading. The external threading on the neck is provided with a breach within which the latching tooth lies when the cap is fully closed, whereby unscrewing of the cap is prevented by the tooth. However, by lifting the strip to raise the tooth above the breach and simultaneously turning the cap, one may unscrew the cap from the bottle to obtain access to its contents.

3,739,935
COMBINED DISPENSERS AND CANISTERS

Gordon J. Cairns, 1301 N.E. 154th St., and Marquerite D. Harrison, 19430 N.E. 22nd Road, both of Miami Beach, Fla.

Filed Mar. 20, 1972, Ser. No. 236,251
Int. Cl. B65d 21/02
U.S. Cl. 220—23.4 1 Claim



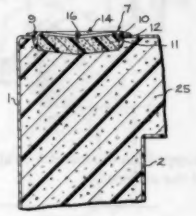
A device for collectively storing dispensers and canisters. This device includes a circular base member from which extends a wire frame having handle means for lifting the structure. Slidably positioned upon the base is a multiple number of canisters or the like which are automatically aligned by the radial positions of the arms of the frame.

3,739,936
POUR HOLE CLOSURE FOR FOAM MOLD

Paul W. Jones, Jr., Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Sept. 17, 1971, Ser. No. 181,303
Int. Cl. B65d 49/02; F16k 21/04
U.S. Cl. 220—86 R 5 Claims

A closure for closing the pour hole of a foam mold cavity such as a refrigerator cabinet comprises a body member having peripheral means for sealingly engaging the edge of the pour hole and a central sheet-like portion covering the pour hole and having a plurality of slits therein intersecting at substantially the center thereof to define a plurality of resilient flaps. A liner of flexible foam resin is secured to the mold side of the central portion and is divided into a plurality of sections by slits intersecting substantially at the point of intersection of

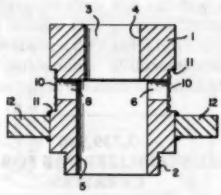


the slits in the central portion. The sections are secured to the flaps by a flexible, elastic adhesive so that both the flaps and the sections can be deformed to allow insertion of a conduit through the closure. The flaps and the sections secured thereto return to their normal positions after removal of the conduit in which position the liner sections deform under the pressure of the expanding foam and seal the slits therein.

3,739,937
FLAMEPROOF DEVICE FOR INTRODUCTION OR REMOVAL OF FLUID CONTENTS OF A CONTAINER

Arthur Stock, Sunderland, England, assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Sept. 10, 1970, Ser. No. 71,045
Int. Cl. B65b 3/18; B67c 3/00
U.S. Cl. 220—86 6 Claims



The invention is concerned with a flameproof device, e.g., a fitting or attachment, in the form of a cap or plug for closing the aperture between a transfer pipe, such as a dip pipe, and the rim of an opening or fitting, which may simply be an oversized mouth of a container into which the transfer pipe is inserted.

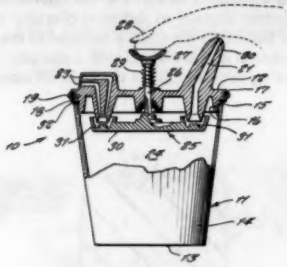
3,739,938
NON-SPILL CUP

Nicolas S. Paz, 14165 East Road, Montrose, Mich.

Filed May 20, 1971, Ser. No. 145,455
Int. Cl. B65d 25/40, 47/20
U.S. Cl. 220—90.4 1 Claim

A drinking vessel from which the contents will not spill out when the vessel is dropped and yet which permits a person to drink therefrom, the device comprising a cup with a remova-

ble cap placed thereupon, the cap including a pouring spout and an air vent for intake of air, and a manually depressable

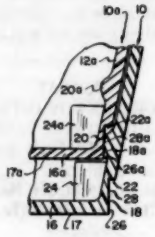


plunger which supports a closure for sealing off the inner ends of the spout and the air vent.

3,739,939
LOCKING STACKABLE CONTAINER

Elmer A. Koenig, St. Louis, Mo., assignor to Sherwood Medical Industries, Inc., St. Louis, Mo.

Filed Mar. 10, 1971, Ser. No. 122,758
Int. Cl. B65d *21/02*
U.S. Cl. 220—97 C **6 Claims**

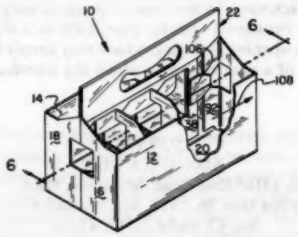


A stackable container for medicaments having continuous side walls tapering downwardly from an open end toward a bottom surface, with the side walls integrally containing positive locking means, assuring that similar containers can be locked securely to each other with a predetermined amount of force, while simultaneously maintaining uniform spacing between the side walls and bottoms of the nested containers.

3,739,940
LONGITUDINAL STABILIZER TAB FOR BASKET-STYLE CARRIERS

Glen R. Harrelson, Monroe, La., assignor to Olinkraft, Inc., West Monroe, La.

Filed Feb. 1, 1972, Ser. No. 222,616
Int. Cl. B65d *75/00*
U.S. Cl. 220—113 **2 Claims**

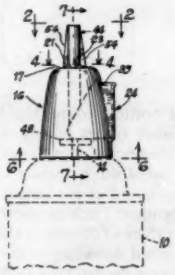


An improved multicell basket-style carrier having at least one longitudinal stabilizer tab formed between the riser panels of the carrier. The stabilizer tab rigidly fastens the riser panels together preventing longitudinal movement of one of the riser panels whenever the carrier is formed and the bottom wall panel is locked in the open position.

3,739,941
ACTUATOR MEANS FOR USE WITH AEROSOL DISPENSERS

Efrem M. Ostrwosky, Highland Park, and William G. Crowle, Deerfield, both of Ill., assignors to Federal Tool & Plastics, a Division of UCA Corporation, Chicago, Ill.

Filed Apr. 26, 1971, Ser. No. 137,227
Int. Cl. B65d *83/14*
U.S. Cl. 222—153 **9 Claims**

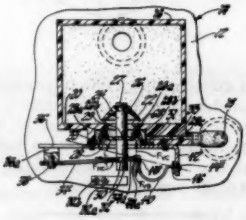


Actuator means adapted for securement to an aerosol container including a cap and a dispensing nozzle, with said cap having a lever integrally formed with said cap and so positioned relative to said cap that pivoting of said lever will cause it to operate the dispensing nozzle which is operatively connected to the valve stem of the aerosol unit to permit the contents of the aerosol container to be discharged therefrom, said nozzle having means cooperating with the cap to lock the nozzle against any movement relative to said cap to prevent the accidental movement of the valve stem and thereby prevent the accidental discharge of the aerosol contents.

3,739,942
DISPENSER HAVING A BIMETAL ACTUATED METERING VALVE ASSEMBLY

Robert L. Mercer, and Edward C. Simmons, both of Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Jan. 18, 1972, Ser. No. 218,706
Int. Cl. B67d *5/08*
U.S. Cl. 222—54 **2 Claims**



In preferred form, a mechanically actuated dispenser assembly suitable for use with a domestic appliance such as a dishwasher discharging a metered quantity of flowable liquid or granular material from a reservoir in response to snap action of a cyclic heated bimetallic actuating spring member. A biasing means, i.e., a C-spring, normally positions a plunger actuated dispensing valve in a closed position. A metering

valve is attached to the plunger and is normally biased to an open position connecting the reservoir with a metering chamber. The bimetallic actuating spring is electrically heated as desired creating a vertical force component of the bimetallic spring that eventually slightly exceeds a like force component of the biasing means snap moving the plunger downwardly shifting the dispensing valve open and discharging a metered quantity of material while simultaneously moving the metering valve closed. In the preferred form, a biasing C-spring is used an is moved to a stop position just short of an over-center position, assuring return movement of the dispensing valve closed and the metering valve open upon subsequent cooling of the bimetallic actuating spring.

3,739,943

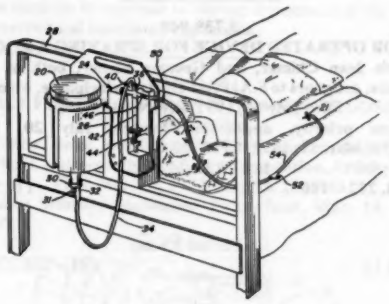
INFUSION SYSTEM

Jack L. Wilhelmson, Fenton; Theodore E. Weichselbaum, St. Louis, and Vernon F. Braun, Berkely, all of Mo., assignors to Sherwood Medical Industries Inc., St. Louis, Mo.

Continuation-in-part of Ser. No. 81,926, Oct. 19, 1970. This application Feb. 4, 1971, Ser. No. 112,691

Int. Cl. B67d *5/08*

U.S. Cl. 222—59 **14 Claims**



A portable infusion system uses a disposable piston-type syringe and a disposable two-way valve as a positive displacement pump. The syringe piston is reciprocally driven by a bidirectional DC motor under control of a battery powered circuit. Different selectable rates of pumping are maintained by controlling the width of bidirectional DC pulses coupled to the DC motor and by monitoring the motor back EMF during the off time of the pulses. Safety circuits protect against deleterious conditions such as the passage of an air bubble, an over-pressure condition, or an excess pumping rate as could be caused by a component failure.

3,739,944

AUTOMATIC PERIODICALLY ACTUATED SPRAY DISPENSER

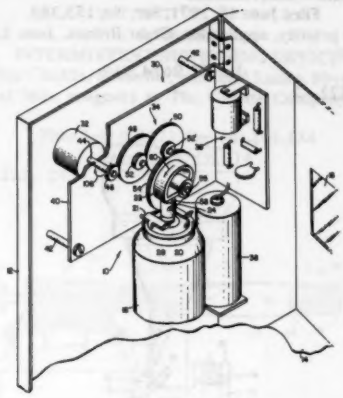
Thomas Rogerson, Old Lyme, Conn., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 25, 1972, Ser. No. 256,733

Int. Cl. B67d *5/08*

U.S. Cl. 222—70 **7 Claims**

An apparatus for automatically and periodically discharging a metered quantity of spray from an aerosol container is described. A DC motor is directly coupled in positive relationship through a reduction gear train and a valve contacting element with a metering valve of an aerosol container. A timing circuit which couples a battery power source to the DC motor delivers periodic power pulses to energize the motor and actuate the container valve. The spring return force in the valve returns the valve contacting element to its normal position at



the end of each power pulse without requiring a disconnection of the positively coupled DC motor.

3,739,945

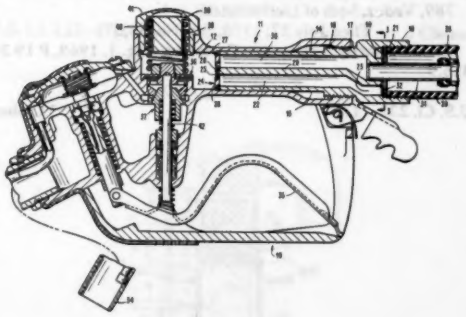
MIXING VALVE FOR FLUID DISPENSING NOZZLE

Glenn E. Moore, and Robert W. Guertin, both of Cincinnati, Ohio, assignors to Dover Corporation, New York, N.Y.

Filed May 17, 1971, Ser. No. 143,825

Int. Cl. B67d *5/04*

U.S. Cl. 222—129 **7 Claims**



A fluid dispensing nozzle has two pressurized fluids supplied thereto through two separate passages extending through a member, which is supported in a passage in the nozzle body whereby the pressureized fluids mix within the body passage. The supported member has a valve supported at its end having the outlets of the passages with the valve having a separate portion controlling each of the passages. When there is flow through only one of the passages in the supported member, the portion of the valve cooperating therewith is moved to an open position by the fluid flow and the fluid pressure exerts a pressure on the portion of the valve cooperating with other passage to seal close said valve portion to insure that there is no leakage from the body passage into the passage in the member not having pressurized fluid supplied thereto.

3,739,946

COIN-FREED VENDING MACHINE

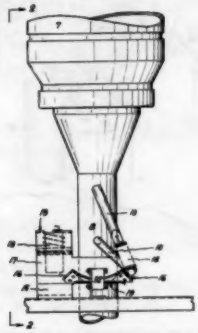
Mervyn Garnet Scholer, Killara, New South Wales, Australia, assignor to Cafe-Bar International Pty., Ltd., North Sydney, New South Wales, Australia

Filed June 15, 1971, Ser. No. 153,383

Claims priority, application Great Britain, June 23, 1970, 30,449/70

Int. Cl. B67d 5/10

U.S. Cl. 222—2 7 Claims



A beverage dispensing machine having a liquid dispenser and a plurality of solids dispensers. The dispensers are coin operated and auxiliary re-setting means puts a predetermined selection of the solids dispensers in an inoperative condition as a consequence of a predetermined number of operations of any one of the dispensers. A main re-setting means is associated with the remaining dispenser so that operation of the latter dispenser causes all solids dispensers not previously rendered inoperative to be inoperative.

3,739,947

STORING AND MIXING RECEPTACLE

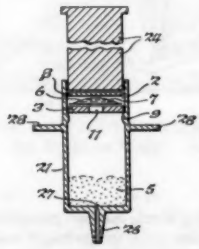
Erwin Baumann, Nendeln, and Gerhard Beham, Lettstrasse 789, Vaduz, both of Liechtenstein

Filed July 27, 1970, Ser. No. 58,571

Claims priority, application Germany, Aug. 1, 1969, P 19 39 316.9

Int. Cl. A61j 1/00

U.S. Cl. 222—136 3 Claims



A storing and mixing receptacle including a container forming a first chamber at its lower end for initially storing a first ingredient, a first piston for separating the first chamber from a second chamber, a second piston movable in the second chamber and adapted to transfer a second ingredient from the latter chamber to the first chamber where the ingredients will be mixed. After removal of a closure means from the lower end of the container, the first piston will be actuated to expel the mixture from the receptacle in the form of a ready product such as a dental preparation ready for use.

3,739,948

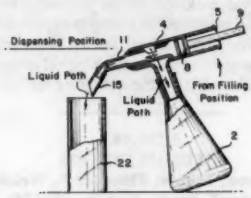
VARIABLE-VOLUME PREDETERMINED-BULK LIQUID DISPENSER

James C. Kontes, Vineland, N.J., assignor to Kontes Glass Company, Vineland, N.J.

Filed Sept. 21, 1971, Ser. No. 182,470

Int. Cl. B67d 5/64

U.S. Cl. 222—166 6 Claims



A variable-volume, predetermined-bulk liquid tilting dispenser, having a precision-bore glass tubing within which a plunger of Teflon is mounted for reciprocation, the plunger being fashioned to withstand repeated autoclaving sterilization operations while maintaining sealing contact with the inner wall of said tubing.

3,739,949

DOOR OPERATED DEVICE FOR SPRAYING A ROOM

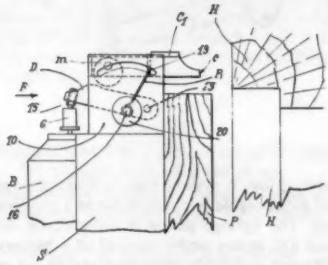
Francois Jean Chimer, and Georges Richer, both of Nice, France, assignors to S.A. Prest'Hygia, Principaute, Monaco

Filed July 16, 1971, Ser. No. 163,255

Claims priority, application France, July 20, 1970, 7027679; Mar. 11, 1971, 7110260

Int. Cl. B62d 5/06

U.S. Cl. 222—180 11 Claims



A device for spraying a room in response to the opening or closing of a door comprises a holder for an aerosol can having an upper compartment carrying a pivotal lever which rests on the dispensing button of the aerosol can. A slide is carried in the compartment above the lever and it is arranged to project so as to be operated either upon the closing or the opening of a door. The housing for the aerosol can is adapted to be mounted on the door in a position at which operation of the aerosol spray will be effected by either the opening or the closing of the door in which the slide moves over the lever to cause it to move downwardly to operate the dispensing button for effecting the spray.

3,739,950

AEROSOL INHALATION APPARATUS

John F. Gorman, 3207 Fryman Road, Studio City, Calif.

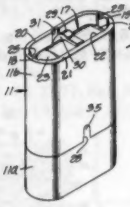
Filed Apr. 5, 1971, Ser. No. 131,263

Int. Cl. B67d 5/06

U.S. Cl. 222—182 8 Claims

Aerosol inhalation apparatus for the dispensing and administering of therapeutic agents or medicaments for inhala-

tion therapy, which is constructed to provide a disposable unit of a small size suitable for carrying in a purse or pocket, the aerosol container being permanently packaged in a two-part housing or closure, one part being in the form of a cup member and the other part providing an actuator structure which includes tubular cap means carried by an actuator member secured to the dispensing valve stem of the valve mechanism provided on the aerosol container, this actuator



member having a nozzle outlet in communication with the valve stem and further providing a mounting which permits movement of the cap means between a capping position in association with the cup member and a non-capping position in which it can be oriented to provide a tubular directive outlet shield around the spray as it leaves the nozzle outlet in the actuator member in response to valving movements of the actuator member and associated cap means.

3,739,951

DEVICE FOR THE DISPENSING OF A SINGLE DOSE OF A LIQUID

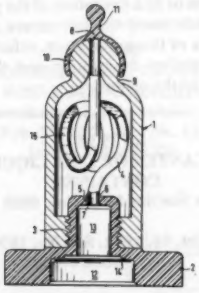
Leo Geller, Basel, and Georg Wolfgang, Riehen, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Mar. 14, 1972, Ser. No. 234,549

Claims priority, application Switzerland, Mar. 16, 1971, 3861/71

Int. Cl. B67d *5/54*

U.S. Cl. 222—193 **11 Claims**



Dispensing device for the dosified dispensing of liquid substances, comprising a casing having a dispensing outlet and an end face part having a propellent inlet opening therein, removable sealing means for the dispensing outlet and sealing means for the inlet opening, the end face part being adapted to be attached to a propellent container;

a storage element is contained in the casing and is connected with its one end to the said dispensing outlet and with its other end to the said inlet opening; this storage element is destined for holding therein the specific dose of liquid to be dispensed.

At least the portion of said storage element which is connected to the inlet opening is dimensioned to have a capillary effect on a liquid contained in the storage element so as to leave a gas pocket free between the liquid and the inlet opening, whereby a displacement of the liquid in the storage element can be impeded when the dispensing device is shaken.

Preferably the storage element consists of a wound piece of hose or tubing having at least one and preferably two or three turns.

3,739,952

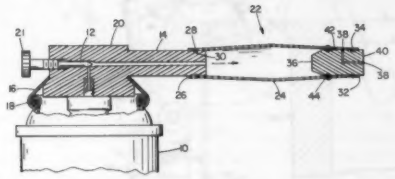
INTERMITTENT DISPENSING DEVICE

Steven Roy Chafitz, Rockville, and Karl Laden, Silver Spring, both of Md., assignors to The Gillette Company, Boston, Mass.

Filed July 9, 1971, Ser. No. 161,134

Int. Cl. B65d *83/14*

U.S. Cl. 222—213 **8 Claims**



A dispenser for intermittently releasing predetermined measured doses of a substance delivered to the dispenser comprising a dose-accumulating member including an elastically expansible element continuously expandable between first and second sizes, which member has an inlet and an outlet. A nozzle engaged with the outlet defines a release channel which is blocked when the expansible element is at the first size and is opened when the element is expanded to the second size.

3,739,953

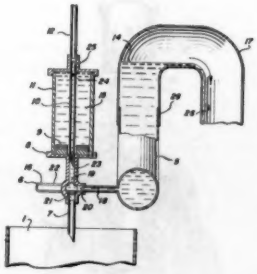
POPCORN OIL METERING DEVICE

Charles D. Cretors, Deerfield, Ill., assignor to C. Cretors & Co., Chicago, Ill.

Filed Aug. 27, 1971, Ser. No. 175,674

Int. Cl. A23l *1/18*

U.S. Cl. 222—318 **2 Claims**

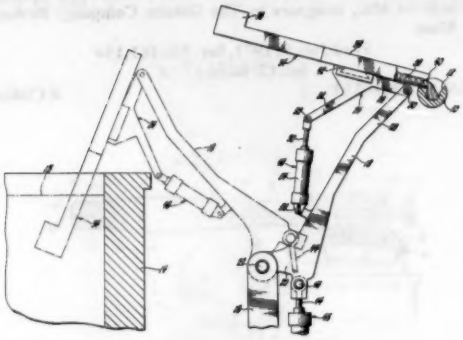


A popcorn oil metering device and method for delivering a predetermined volume of popping oil to a popper. Oil continuously pumped to a static head elevation controlled by an arched manifold rises through three-way valves to an equivalent head in a plurality of metering chambers prior to release into the popper by the three-way valve. The predetermined volume metered may be altered by the insertion of volume displacement washers in the metering chamber, adjusting metering chamber air vent capabilities, or varying arch manifold elevation which controls the static head elevation and level of rise in the metering chamber.

3,739,954
ARTICULATED FILLING AND DISPENSING LADLE MECHANISM

Charles D. Blagg, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed May 15, 1972, Ser. No. 253,180
Int. Cl. B22d 37/00
U.S. Cl. 222—357 3 Claims

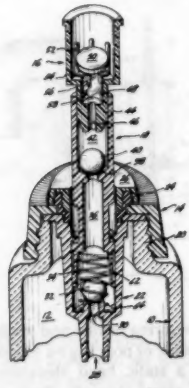


A ladling mechanism for transferring molten metal from a holding vessel directly to the entry port of a die cast machine including a tiltable stem-pour type ladle mounted on a vertically extending arm pivotal in vertical plane about its base between a ladle fill position near the holding vessel and a die fill position near the entry port of the die case machine and operative means cooperatively associated with the arm and the ladle whereby in one position a charge of molten metal is dipped from the holding vessel and in the other position the molten metal is poured directly into the entry port of the die cast machine.

3,739,955
RESERVOIR DISPENSER

Kenneth W. Gores, 1026-112th N.E., Bellevue, Wash.

Continuation of Ser. No. 9,235, Feb. 6, 1970, abandoned. This application Jan. 12, 1972, Ser. No. 217,216
Int. Cl. B67d 5/42
U.S. Cl. 222—385 2 Claims

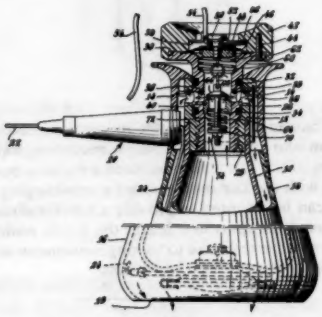


A cup forms an upper portion of a manually-operable pump associated with a container from which liquid is to be withdrawn in small amounts. A disc of substantial area is mounted in the lower portion of the cup in a fixed spaced relationship over an inlet opening and spaced from bottom and lower side wall portions of the cup. Liquid flowing through the inlet opening is first diverted radially outwardly by the disc, to flow through the space between the disc and the cup bottom, and is then diverted upwardly by the cup side wall to flow through the space between the periphery of the disc and adjacent side wall portions of the cup.

3,739,956
VALVED STOPPER

Frank L. Reynolds, Monroe, Conn., assignor to Frigitronics of Conn., Inc., Shelton, Conn.

Filed Mar. 6, 1972, Ser. No. 232,165
Int. Cl. A61b 17/36
U.S. Cl. 222—396 10 Claims



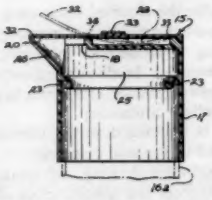
There is disclosed a valved stopper for use with a self-pressurizing liquid refrigerant dispenser such as used in dermatologic cryosurgery. An operating lever is urged normally outwardly by a spring within the stopper and is loosely linked to a spring loaded vent valve which is normally open. When the lever is manually depressed, the vent valve is closed by its own spring with a force independent of finger pressure. The vent valve then acts as a regulator to prevent excessive pressure build-up within the container.

The foregoing abstract is not to be taken either as a complete exposition or as a limitation of the present invention, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be had to the following detailed description and the accompanying drawings as well as to the claims.

3,739,957
COVER FOR DECANTER OR LIKE LIQUID DISPENSING CONTAINER

Melvin Alpern, c/o Starlite Mfg. Co., 9800 McKnight Road, Pittsburgh, Pa.

Filed Oct. 14, 1971, Ser. No. 189,454
Int. Cl. B65d 47/00
U.S. Cl. 222—556 10 Claims



Removable cap, having a pouring spout thereon, fits snugly over straight-necked decanters or like fluid dispensing containers, has integral skirt, extended to serve as unobtrusive handle to be gripped in the hand of user for pouring purposes without direct contact with neck of container. Skirt has in-

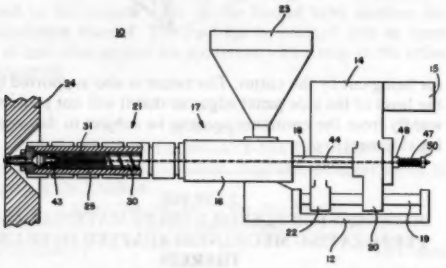
tegral inner lip forming peripheral recess for yielding reception of top edge of container neck, thereby to hold cap in place for such pouring, by operation of closure means normally closing spout opening. Closure means has no springs or other bulky protruding parts, and, it is operable by finger pressure of the hand used for gripping skirt to support container for said pouring purposes.

3,739,958

NON-RETURN VALVE FOR INJECTION MOLDING MACHINE

Raymond A. York, Chester Springs, Pa., assignor to Beloit Corporation, Beloit, Wis.

Filed Dec. 10, 1971, Ser. No. 206,805
Int. Cl. G01f *11/20*
U.S. Cl. 222—404 **10 Claims**



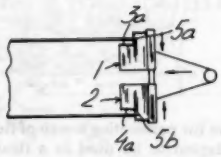
A valve for accurately controlling the quantity of plastic shot in an injection molding machine, said valve including a plunger slidably disposed through the center of a reciprocating screw, and a valve plug secured to the injection side of the plunger. The force of the plasticized material delivered by the rotatable screw opens the plug against an external force acting against the plunger. Upon stoppage of screw rotation, the external force seats the plug thereby accurately controlling the shot quantity.

3,739,959

A DEVICE FOR RETAINING TROUSER-LEGS IN POSITION WHILE BEING MACHINE IRONED

Jing Gordon, Hummelvagen 2, Johanneshov, Sweden

Filed Feb. 17, 1971, Ser. No. 115,973
Int. Cl. D06c *15/00*
U.S. Cl. 223—63 **1 Claim**



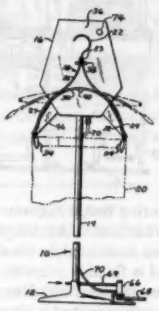
A device for retaining trouser-legs in position while being machined ironed having trouser holders having two mutually displaceably arranged overlapping thin plates which transmit the ironing force from ironing cushions of the machine to the trouser legs, said plates being stepped in the opposite sides thereof so that the device can be used for trousers having different widths, said plates each being connected to one leg end of a spring means which has a loop and curved spring legs extending from this loop, said spring legs having their ends inserted into holes in the plates.

3,739,960

GARMENT FINISHING HANGER AND LOADER THEREFOR

Philbert Jay Maez; Richard D. Thompson, and Michael G. Beeley, all of Salt Lake City, Utah, assignors to McGraw-Edison Company, Elgin, Ill.

Filed Sept. 13, 1971, Ser. No. 180,025
Int. Cl. D06c *15/00*
U.S. Cl. 223—73 **4 Claims**



A hanger for fitting under flexure within an open top waist type garment, such as a pair of pants or a skirt, and for suspending the garment in a waist open tubular manner, whereby the entire garment both inside and out held as such can be finished with a single cycle in a box or tunnel type finisher using a conditioning fluid such as steam and a drying fluid such as heated air, and a device for flexing and holding the hanger in a flexed condition to allow quick and easy garment dressing on and/or garment removal from the hanger.

3,739,961

SAFE PERSONAL EFFECTS POUCHES AND STRAP MEANS FOR UNDER ARM OR SHOULDER WEAR

John E. Soukeras, 440 Heliotrope St., Corona Del Mar, Calif.

Filed Feb. 18, 1971, Ser. No. 116,530
Int. Cl. A45c *3/00*
U.S. Cl. 224—5 R **3 Claims**

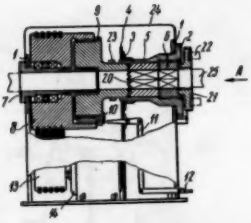
There is disclosed a personal effects or money and valuable papers carrying pouch arrangement for wear either under the arms or over the shoulders including novel cross-over strap coupling means which incorporate quick-assembly and quick-release mechanisms for the straps. When worn under the arms the pouches are safe from pickpockets.

3,739,962

DEVICE FOR SHEARING METAL SECTIONS

Jury Alexandrovich Boborykin, Pomerki DMS KhAI, kv. 43, and Jury Goergievich Kurkin, ulitsa 23, Avgusta 31-a, kv. 15, both of Kharkov, U.S.S.R.

Filed Mar. 10, 1972, Ser. No. 233,458
Int. Cl. B26f 3/00
U.S. Cl. 225—102 4 Claims



A device for shearing metal sections by twisting comprises interacting dies in the form of bushings one of which is capable of turning around its axis while the other one can slide axially in the body and is flexibly pressed against the face of the turnable die in the metal shearing plane.

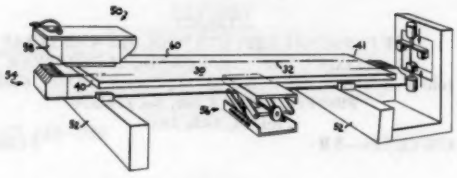
The turnable die is connected with a rotating element by a clutch.

3,739,963

METHOD OF AND AN APPARATUS FOR CONTROLLING EDGE FLARE IN THERMAL CUTTING

Edmund R. Michalik, West Mifflin, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Oct. 7, 1971, Ser. No. 187,258
Int. Cl. B26f 3/00, 3/06
U.S. Cl. 225—2 15 Claims



In a method of and apparatus for thermally cutting a piece of glass along an intended path of cut, a thermal or mechanical means modifies a stress profile at a back edge of the piece of glass along the intended path of cut to eliminate edge flare. A heat source concentrates heat on a major surface of the piece along the intended path of cut, and the thermal or mechanical means places a major surface that faces away from the heat source in compression at the back edge so that a fracture will run along the intended path of cut.

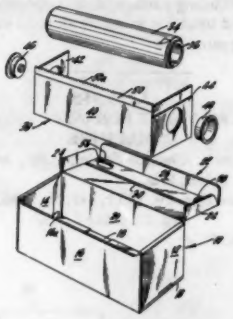
3,739,964

CUTTER-TYPE BOX FOR DISPENSING PACKAGING FILM

Orrin Burr Stine, New York, N.Y., assignor to Borden Inc., New York, N.Y.

Filed June 25, 1970, Ser. No. 49,869
Int. Cl. B26f 3/02
U.S. Cl. 225—47 7 Claims

A cutter-type box for dispensing packaging film includes means such as a separate insert for rotatably supporting a roll of the film within a rectangular box container having a closeable cover flap or panel. The film is fed outwardly through a transverse slit defined in the top cover for delivery over an edge at which a cutter is arranged. The cutter is supported so that it projects upwardly beyond the top surface of the top cover over which the film is fed so that the film is in a position



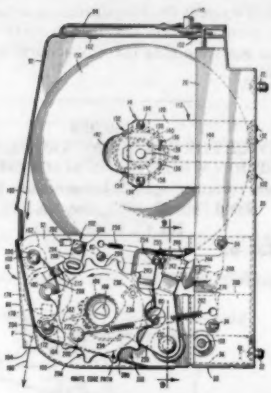
for being cut by the cutter. The cutter is also supported below the level of the side panel edges so that it will not project outwardly from the container so as to be subject to damage during shipment.

3,739,965

DISPENSER FOR FLEXIBLE SHEET MATERIAL AND A PERFORATING MECHANISM ADAPTED TO BE USED THEREIN

Paul W. Jespersen, Stamford, Conn., and Edward L. Bump, Oak Park, Ill., assignors to Georgia-Pacific Corporation, Portland, Oreg.

Division of Ser. No. 793,808, Jan. 24, 1969, Pat. No. 3,575,328. This application Jan. 6, 1971, Ser. No. 104,415
Int. Cl. B26f 3/02
U.S. Cl. 225—96 9 Claims



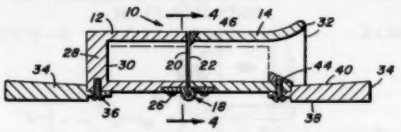
A mechanism for perforating a web of flexible sheet material which is adapted to be used in a flexible sheet material dispenser, said mechanism comprising; a rotatably mounted roller, a rotatably mounted knife positioned adjacent the roller and having a radially outward portion defining a cutting edge for perforating the web as the web passes between the roller and the knife, the roller being operatively connected to the knife for synchronous rotation therewith and having a slot therein for receiving the radially outward knife portion as the knife rotates past the roller, and means associated with the knife for orienting the cutting edge substantially in the direction in which the radially outward knife portion moves with respect to the web during the entrance of the portion into the slot so that when the portion enters the slot the cutting edge will effectively perforate the web.

3,739,966

COIN TUBE OPENER

William E. Lynn, 4130 Camelot Drive-Bl. Raleigh, N.C.

Filed Aug. 17, 1971, Ser. No. 172,389
Int. Cl. B26f *3/00*
U.S. Cl. 225—96.5 10 Claims



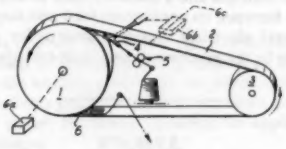
A tubular coin package positioned within a rigid tube formed by two hinged sections, is ruptured by pivotal displacement of the tube sections from an axially aligned position in order to empty the contents of the package. Handles are connected to the remote ends of the hinged tube sections for manipulation thereof. The package is inserted into an open end of one tube section for abutment with a stop in the other tube section.

3,739,967

HANDLING ELONGATE MATERIALS

Evan Islwyn Jones, Macclesfield, England, assignor to G. H. Heath & Co. Limited

Filed Oct. 28, 1970, Ser. No. 84,686
Int. Cl. B65h *25/06*
U.S. Cl. 226—7 16 Claims



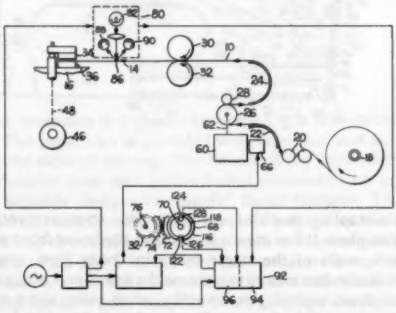
Apparatus for handling flexible elongate material such as textile yarn comprises feed rolls for feeding the material forwards, means for forming the material into folds, and for maintaining the folds for a determined period. The folds may be formed by successively displacing the yarn in opposite directions laterally of its line of travel. The yarn may be space printed in the folded condition.

3,739,968

REGISTRATION CONTROL TIMING SWITCH FOR WEB-PROCESSING MACHINE

Raymond E. Bodendoerfer, Brookfield, Wis., assignor to Paper Machinery Corporation, Milwaukee, Wis.

Filed Dec. 29, 1971, Ser. No. 213,502
Int. Cl. B65h *23/18*
U.S. Cl. 226—30 7 Claims



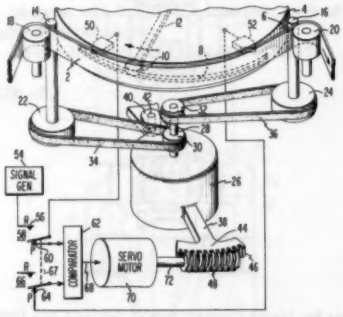
Web-cutting apparatus wherein an individual cutting zone on a web must be properly positioned (i.e., in register) relative to a cutting blade at a predetermined time to insure a proper cut requires control means, including a timing or selector switch, for determining if registry exists and for making appropriate changes in web speed if it does not. The timing or selector switch comprises a rotatable shaft synchronized with operation of the cutting blade. A pair of ferrous metal discs are mounted on and rotatable with the shaft. Each disc has a notch in its periphery, and a pair of magnetic pickup devices, one for each disc, are mounted in fixed positions relative to their respective discs. Each pickup device provides an electrical pulse upon passage of the notch in its associated disc as the latter rotates. The interval between the pulses produced by the two pickups for each rotation of the shaft serves as the desired time interval. The duration of the time interval can be varied by changing the angular distance between the pickup devices by moving either one or both to a different position. The time interval itself can be shifted by changing the positions of both pickup devices without changing the angular distance between them to effect advancement or retardation of the web to achieve registry.

3,739,969

RECORDING WEB TRANSPORT APPARATUS

Henry Ray Warren, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 25, 1972, Ser. No. 229,462
Claims priority, application Great Britain, Mar. 16, 1971, 6,967/71; Mar. 16, 1971, 6,971/71
Int. Cl. B65h *23/22*
U.S. Cl. 226—31 12 Claims



A belt drive arrangement for controlled transporting of an elongated recording web. The relative position of the prime mover and a driven member which imparts movement to the web is made controllably variable. The position variation alters the characteristics of belt means utilized to couple the drive to the motion imparting member.

3,739,970

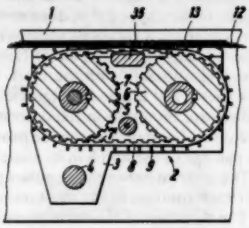
TRANSPORT HEAD ON COLLATING MACHINES FOR ENDLESS FORMS

Otto Staamann, Berlin, Germany, assignor to Firma Automatic Druckmaschinenfabrik, Berlin, Germany

Filed Apr. 20, 1972, Ser. No. 245,908
Claims priority, application Germany, July 8, 1971, P 21 34 666.7
Int. Cl. B65h *17/38*
U.S. Cl. 226—75 7 Claims

A transport head on collating machines for transporting endless forms having edges with perforations, comprises a geared conveyor belt driven by one of two spaced apart gears with at least one being adjustable to permit stretching and or

relaxing of the belt in order to vary the spacing of engagement spikes on the belt. The spikes engage into perforations on the



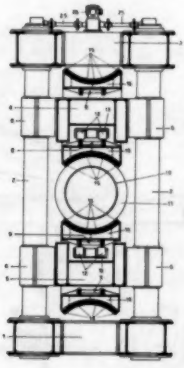
forms and are adjustable to accommodate variations in the perforation spacing on the form.

3,739,971

PIPING TENSIONING DEVICE

Antonio Silvestri, San Donato Milanese, and Guglielmo Gargatagli, Milan, both of Italy, assignors to Saipem S.p.A., Milan, Italy

Filed Apr. 8, 1971, Ser. No. 132,514
Claims priority, application Italy, Apr. 9, 1970, 23081 A/70
Int. Cl. B65h *17/34*
U.S. Cl. 226—172 **11 Claims**



Device for laying piping columns under a pre-fixed constant stretch, permitting laying pipe in the sea at substantial depths, comprising means for tightening between them the pipe to be launched, control and vertical guide means for bringing the tightening means into contact with the pipe and for applying a frictional force, and actuating means for running the tightening means horizontally to exert traction on the piping column, the tightening means being characterized in having two long opposite tracks running on sliding rolls and supported by sliding blocks which are hinged so as to adjust the tracks to conform to the pipe and rubber coated curved, pipe-conforming saddles attached to the tracks.

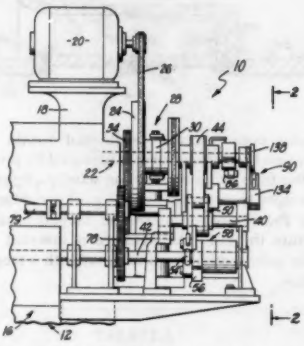
3,739,972

CARTON STITCHING MACHINE

Odell D. Crittenden, 18432 Drayonera Drive, Rowland, Calif.

Filed Mar. 2, 1971, Ser. No. 120,116
Int. Cl. B27f *7/22*
U.S. Cl. 227—3 **11 Claims**

An improved and simplified carton stitching machine of the class used for stitching a stitch flap at one end of a paperboard carton blank to an end panel at the other end of the blank to form a tubulated carton structure. The blank is fed through the machine by powered feed rolls which are initially driven at high constant speed to advance the carton to the stitching station, then driven intermittently to feed the blank with a stepwise motion through the station during which the carton is stitched by driving of staples at intervals through the stitch flap and panel, and finally driven at high constant speed to



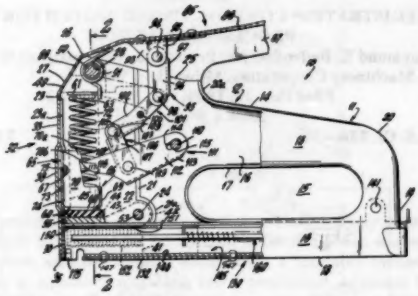
eject the stitched carton structure from the machine. The inventive improvements reside in novel means for operating certain machine clutches and a latch member to effect shifting of the machine between its continuous feed and step feed modes and in a novel electrical counting system for counting the stitches made by the machine during each stitching cycle.

3,739,973

STAPLING MACHINE

Morris Abrams, Great Neck, N.Y., assignor to Arrow Fastener Co., Inc., Saddle Brook, N.J.

Filed June 30, 1971, Ser. No. 158,412
Int. Cl. B25c *5/06*
U.S. Cl. 227—120 **10 Claims**



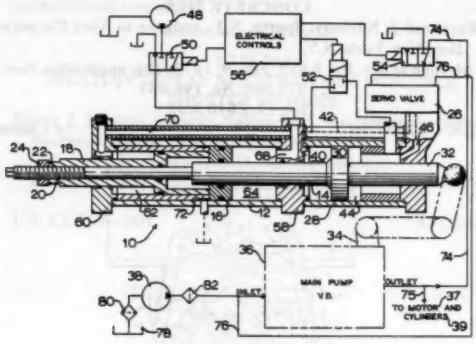
This stapling machine embodies two improvements over prior staplers. It has means to prevent the lower front ends of the side walls of the staple magazine body from spreading apart. It also has means to prevent the lower end of the driven staples from swinging rearwardly, when using short staples, such as are used when stapling insulated electric wires to a base.

3,739,974

CONVERSION OF VARIABLE DELIVERY PUMP TO FIXED DELIVERY PUMP FOR A FRICTION WELDER

Josef Kiwalle and Ira H. Sage, both of Peoria, Ill., assignor to Production Technology Inc., Peoria, Ill.

Division of Ser. No. 27,903, April 13, 1970, Pat. No. 3,625,637. This application July 2, 1971, Ser. No. 159,551
Int. Cl. B23k *27/00*
U.S. Cl. 228—2 2 Claims



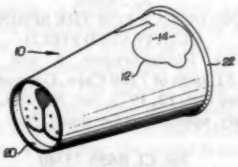
A variable delivery fluid pump and a variable delivery fluid motor are used to accelerate the spindle of an inertia welding machine to the welding speed, and the pump is then converted to a fixed delivery pump in order to provide a non-fluctuating pressure to power the thrust cylinders for application of the welding pressure.

3,739,975

NOVELTY PARTY CUP

Jodell Davidow, 7116 Hillside Avenue, Los Angeles, Calif.

Filed Jan. 13, 1972, Ser. No. 217,465
Int. Cl. B65d *3/00*
U.S. Cl. 229—8 20 Claims



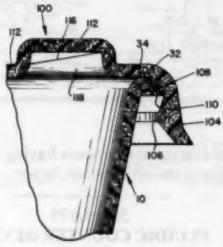
The invention is typically embodied in a disposable paper cup. The paper cup is provided with flaps that fold outwardly from the sides of the cup. The insides of the flaps (that is, the sides hidden from view before folded outwardly) are provided with suitable designs of fanciful facial features. The flaps cooperate with fanciful facial features printed on the bottom of the cup to constitute a suitable mask or caricature that can be held to the user's face. Since the caricature components of the mask are normally concealed; the secondary mask use of the cup has a surprise element. Since the flaps are normally in place along the sides of the cup, the cups are nestable notwithstanding the secondary function.

3,739,976

INSULATED PLASTIC BUCKET

Gene D. MacDaniel, Lithonia, Ga., assignor to Sweetheart Plastics, Inc., Wilmington, Del.

Division of Ser. No. 879,448, Nov. 24, 1969, Pat. No. 3,664,568. This application Nov. 26, 1971, Ser. No. 202,166
Int. Cl. B65d *5/64, 43/00*
U.S. Cl. 229—43 4 Claims



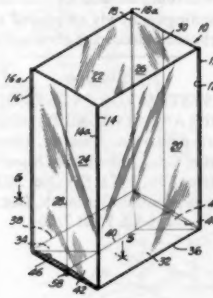
A container having a wrapped side wall of foam plastic sheet material with the side margins overlapped and welded together, and a separately formed bottom having a central portion generally perpendicular to the container axis and with an annular skirt extending away from the plane of the central portion and sealed to the lower margin of the side wall. A lid made of the same material fits over the upper margin of the container.

3,739,977

PLASTIC MARKET BAG

Jeffrey S. Shapiro, and Deborah A. Shapiro, both of 4270 N. Hills Drive, Hollywood, Fla.

Filed June 22, 1971, Ser. No. 155,515
Int. Cl. B65d *33/02*
U.S. Cl. 229—55 2 Claims



A bag formed from a seamless section of tubular plastic film is provided wherein the lower end portions of one pair of opposing side wall members are folded inwardly and joined together to form a bottom base for the bag, and the lower end portions of another pair of side wall members are folded inwardly over the base so as to form gussets at the corner ends thereof which overlie and are heat sealed to the respective lower corner ends of the one pair of opposing side wall members.

3,739,978

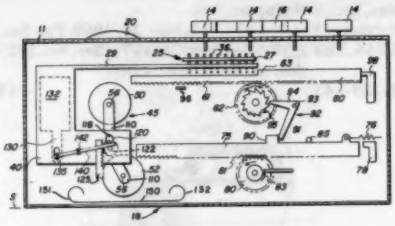
CONVERSION APPARATUS

Roger Andrew Powell, 1455 Whitwood Drive, Norristown, Pa.

Filed Oct. 8, 1971, Ser. No. 187,734
Int. Cl. G06c *17/00*; G07g *1/00*
U.S. Cl. 235—61 PK 6 Claims

Apparatus is disclosed for automatically converting inches to the metric system of measurement and for printing-out both

the inch value and the metric equivalent on the surface upon which such apparatus is disposed. The apparatus may be



adapted to any conversion process having a limited number of significant digits in the conversion factor.

3,739,979

FLUIDIC COUNTER DEVICE

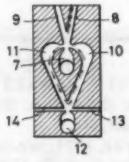
Keiichi Hanada, Kimihiko Saito, and Akikazu Iwase, all of Tokyo, Japan, assignors to Meidensha Electric Mfg. Co. Ltd., Yokyo, Japan

Filed Mar. 22, 1971, Ser. No. 126,665

Claims priority, application Japan, Mar. 23, 1970, 45/23595

Int. Cl. G06m *1/00*

U.S. Cl. 235—201 PF **1 Claim**



The present invention is to provide an improved fluidic counter device, wherein, instead of conventional devices a pair of suction openings is newly employed at the junction, so that more stable characteristics are obtainable.

3,739,980

VENTILATION SYSTEM FOR STOREROOMS FOR ROOT CROPS AND SIMILAR PRODUCTS

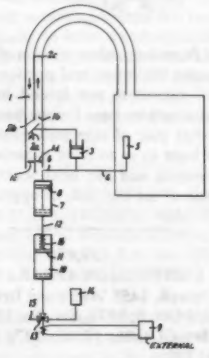
Christian Karmark Andersen, Nastved, Denmark, assignor to Nordisk Ventilator Co. Aktieselskab, Naestved, Denmark

Filed Nov. 30, 1971, Ser. No. 203,301

Claims priority, application Denmark, Dec. 2, 1970, 6147

Int. Cl. F24f *7/06*

U.S. Cl. 236—49 **4 Claims**



A ventilation system for storerooms for root crops and similar products, in which the amount of air exhausted from and injected into the room is adjusted by means of a damper controlled by a hydraulic thermostat arrangement in dependence on the temperature in the room as well as the ambient temperature, said thermostat arrangement having two operative states, so that the injection of ambient air is blocked at ambient temperatures either below or above a certain value independent on the room temperature in order to obviate undesired heating or cooling of the products stored due to injection of fresh air.

3,739,981

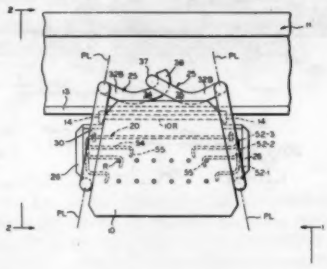
CONCRETE TIES

Raymond J. Novotny, Sparta, N.J., assignor to Abex Corporation, New York, N.Y.

Division of Ser. No. 9,852, Feb. 9, 1970. This application Nov. 5, 1971, Ser. No. 196,057

Int. Cl. E01b *3/32*

U.S. Cl. 238—92 **4 Claims**



A concrete tie is provided with protuberances on opposite sides thereof serving to anchor a pair of one-piece spring-type rail fasteners. Each fastener has a bight tensioned on the protuberance, and a pair of legs extend upward from the bight. The upper ends of the legs are bent to afford extensions which overlie the base of the rail, and bends therein engage the base of the rail with a spring force. The free ends of the fasteners end in hooks, one hook being the complement of the other so that a pair of such fasteners may be complementally joined at the free ends and tensioned one on the other.

The protruberances of the tie are under a great deal of compression and are reinforced by bends in a plurality of rodlike stringers embedded in the tie to extend between the protuberances.

3,739,982

METHOD AND DEVICE FOR THE SPRINKLING OF A CULTIVATED FIELD

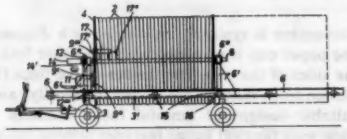
Alexander Perrot, Hindenbrugstr. 6, and Emil Schucker, Lange Steige 51, both of 7260 Calw, Germany

Filed Oct. 12, 1971, Ser. No. 188,300

Claims priority, application Germany, Nov. 2, 1971, P 20 53 771.1

Int. Cl. B65h *75/40*

U.S. Cl. 239—1 **13 Claims**



A method of sprinkling water over a large cultivated area and a device for performing this method, where a sprinkler head on a sprinkler carrier is advanced along a straight-line distance by pulling a long, flexible water supply hose along this line, the hose being slowly wound onto a horizontal drum,

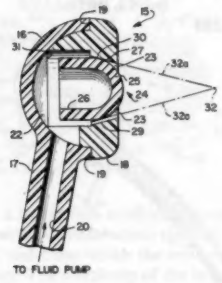
while feeding water to the sprinkler. In order to avoid deviations of the advancing hose from the straight-line to be travelled by the sprinkler, the hose drum is slowly displaced along its axis by synchronously shifting a carriage on which it is mounted, so that the point at which the straight portion of the water hose extends from the drum remains in alignment with the line to be travelled by the sprinkler. The method further includes steps for repeating the sprinkling procedure on adjacent lines of sprinkler travel, and the device suggested for this includes a wheeled vehicle frame which is movably positioned on a transverse access lane to the field. The device further includes automatic controls for starting and stopping the sprinkling operation.

3,739,983

MULTI-JET SPRAY NOZZLE WITH A MOVABLE SHUTTER MEMBER

Pierre J. Jousson, Geneva, Switzerland, assignor to Institut de Recherche Woog, Geneve, Switzerland

Filed July 7, 1971, Ser. No. 160,280
Claims priority, application Sweden, Jan. 19, 1970, 754/70
Int. Cl. B05b *1/08*
U.S. Cl. 239—101 **44 Claims**



A spray nozzle for expelling a jet of fluid, particularly suited for use in massaging the gums by the use of a liquid and for cleaning the teeth, comprises a nozzle body which defines an inner fluid cavity therein and an opening which is limited by a seating surface. A freely-movable shutter member is contained within the inner cavity in the spray nozzle and is arranged so that a bearing surface of the shutter member is pressed against the seating surface of the opening to cover the opening under the action of a fluid pressure. The seating surface of the opening and/or the bearing surface of the shutter member cooperate to define the nozzle aperture having at least one groove which permits passage of the fluid from the inner cavity of the spray nozzle to the exterior thereof. A number of possible configurations for the movable shutter member are disclosed. The grooves which define the nozzle apertures may be located either on the seating surface of the opening in the nozzle body or on the exterior surface of the movable shutter. Preferably, the nozzle is made from a plastic material, or from a plastic material with a metal insert.

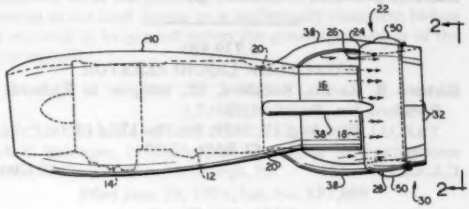
3,739,984

THRUST AUGMENTING AND SOUTH SUPPRESSING APPARATUS AND METHOD

Remo Tontini, San Diego, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Continuation-in-part of Ser. No. 137,630, April 26, 1971, which is a continuation of Ser. No. 866,641, Oct. 15, 1969, abandoned. This application Aug. 25, 1971, Ser. No. 174,629
Int. Cl. B63h *25/46*; **B64c** *15/10*
U.S. Cl. 239—265.17 **12 Claims**

An aircraft jet engine is provided with an ejector nozzle which suppresses the jet noise and augments the thrust during takeoff and climb while also optimizing the thrust during cruise. The ejector nozzle is formed as a barrel or ring which is supported in operative position aft of the exhaust nozzle and defines, with the noxxle, inlet passage means for free stream air to enter and mix with exhaust gases in the mixing zone defined by the nozzle. Peripheral jet nozzle means inside the ring eject a peripheral jet stream which surrounds and accompanies the mixed gases passing therethrough, adding to the



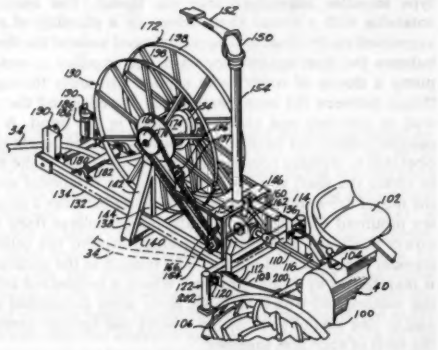
total thrust and further mixing the gases. Jet nozzle means is supplied with energized gas by conduits connected to the engine. Ejector ring is fixed in position and supported by conduits to form an integrated ejector nozzle. This is made possible by the use of the jet nozzle means which controls the effective nozzle profile and flow therethrough to minimize thrust loss in cruise to acceptable value.

3,739,985

IRRIGATION EQUIPMENT FOR TRACTOR

Richie G. Odom, and Carson W. Fowler, both of P. O. Box 151, Ashburn, Ga.

Filed Oct. 27, 1970, Ser. No. 84,280
Int. Cl. E01h *3/02*
U.S. Cl. 239—172 **6 Claims**



A method of irrigating a large tract of farm land without the use of permanent irrigation sprinkler systems, ditches, pipes and the like. Defining the tract in a general rectangular or square shape, sections of conventional aluminum or other irrigation pipe which may be rigid are detachably coupled together and led to the source of water usually a farm pond or lake and suitable pumping equipment is used with gasoline or diesel engines to suck the water from the pond or lake and deliver it at proper pressure through the base piping which is sort of in the middle of the tract. Flexible irrigation hose coiled on a large reel has one end detachably attached to the outlet end of the base pipe system and is supported on a three-point tractor hitch from which there is a power take-off means selectively to drive the hose reel to wind or unwind. A large, conventional farm-type irrigation sprinkler head is mounted on the frame with the reel and is driven by the water pressure from the flexible hose. The tractor unwinds the reel to the far end of the tract from the sort of central base piping system and

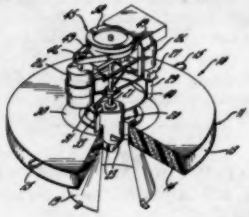
then takes stationary position with the sprinkler operating or travels slowly substantially in a straight line from one side of the tract to the other, turning towards the unwatered tract after reaching the far side, detaching whatever base piping is necessary, adjusting the flexible hose to reel or unreel as required and proceeding to water the remainder of the tract in this fashion. The frame supporting the reel on the three-point hitch of the tractor includes suitable roller guide means and may be adjusted from the tractor by the three-point hitch.

3,739,986

AXIAL FLOW LIQUID AERATOR

Richard B. Ravitts, Rockford, Ill., assignor to Richards of Rockford, Inc., Rockford, Ill.

Filed Aug. 17, 1971, Ser. No. 172,517
Int. Cl. B05b *17/00*
U.S. Cl. 239—221 **10 Claims**



An axial flow liquid aerator includes a float with an upright tubular throat extending therethrough and includes a drum-type impeller telescoped into the throat. The impeller is rotatable with a power shaft driven by a plurality of motors supported on the float and equally spaced around the throat to balance the float against tipping as the impeller is rotated to pump a sleeve of water from a pond upwardly through the throat between the outer wall of the impeller and the throat wall to circulate and aerate the water in the pond. A speed reducer connected between the motors and the power shaft is operable to transfer rotational motion from each of the motors to rotate the shaft at a speed less than the rotational speed of the motor drive shafts. The speed reducer includes a small pulley mounted on each drive shaft, larger pulleys fixed to the power shaft and endless belts trained around the pulleys to transfer the rotational motion. The tension in the endless belts is maintained by a belt tensioner which is connected between the motors and which includes lever arms connected at one end to one side of each of the motors and springs connecting the ends of each arm together.

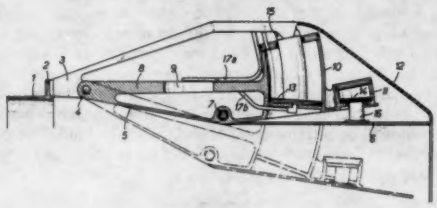
3,739,987

ARRANGEMENT OF JACKS FOR CONTROLLING FLAPS AND ITS APPLICATION TO THE CONTROL OF A JET PIPE

Guy Emile Louis Servanty, Noisy-Le-Roi, France, assignor to Societe D'Etudes Et De Recherches Appliquees S.E.R.A.P., Le Chesnay, France

Filed Jan. 7, 1972, Ser. No. 216,195
Claims priority, application France, Jan. 8, 1971, 7100528
Int. Cl. B64c *15/06*
U.S. Cl. 239—265.39 **11 Claims**

A control device for controlling two hinged elements arranged one behind the other by means of a tandem assembly of fluid operated jacks, in which control device each of the jacks has a cylinder in the form of a torus with an axis in the arc of a circle centered on a point located outside of the said cylinder, and a piston mounted in the cylinder. The piston has an external torus-shaped surface for co-operation with the wall of the cylinder whereby relative travel between the



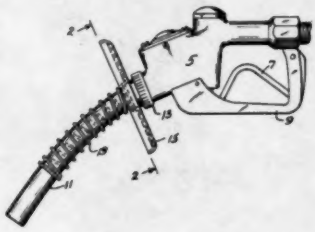
cylinder and the torus-shaped piston follows a curved line centered on the said external point.

3,739,988

LIQUID DISCHARGE NOZZLE AND SPLASH BAFFLE

Ray C. Kisor, St. Louis; Thomas P. Solomon, Arnold, and Grenville G. Sutcliffe, Kirkwood, all of Mo., assignors to Husky Corporation, Kirkwood, Mo.

Filed Dec. 16, 1971, Ser. No. 208,672
Int. Cl. B05b *15/00*
U.S. Cl. 239—288 **2 Claims**



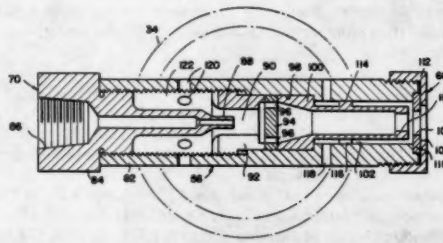
A discharge nozzle such as is used on filling station gasoline pumps and a disc-shaped splash baffle therefor fitting over and extending radially of the nozzle spout in front of the nozzle handle.

3,739,989

DUCT BURNER FOR OPERATION WITH LIQUID OR GASEOUS FUELS

Ralph R. Vosper, San Jose, Calif., assignor to Coen Company, Inc., Burlingame, Calif.

Division of Ser. No. 84,036, Oct. 26, 1970. This application July 19, 1972, Ser. No. 273,234
Int. Cl. B05b *7/10*
U.S. Cl. 239—399 **5 Claims**



An air augmented liquid or gaseous fuel burner having a hollow post mounting a plurality of fuel discharge nozzles spaced over the length of the post and a combustion chamber aligned with each discharge nozzle. An air plenum is disposed about the nozzle, the post and the combustion chamber. An

upstream end of the nozzle is connected to a liquid fuel pressure reducer having relatively large cross sectional passageways for reducing the pressure of the liquid fuel supplied from a manifold. The discharge nozzle includes a liquid fuel atomizing core which employs an atomizing plate together with an air flow entering the nozzle interior through apertures in the nozzle housing from within the hollow post. For gaseous fuel operation of the burner the gas is passed through the hollow post and the bores in he nozzle housing for a discharge towards the combustion chamber. Suitable air inlets between the nozzle discharge end and the combustion chamber are provided for admixing the discharged fuel with sufficient air to sustain the growth of the jet issuing from the nozzle. The air plenum is so constructed that it induces eddy currents within the combustion chamber.

3,739,990

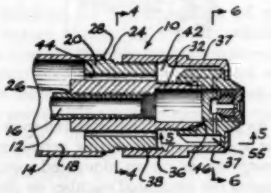
ATOMIZING BURNER NOZZLE TIP

Leonard Edward Triggs, Avon, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Oct. 15, 1971, Ser. No. 189,671

Int. Cl. B05b *7/06*

U.S. Cl. 239—425 **12 Claims**



A nozzle tip for a liquid fuel atomizing burner is provided with an annular aperture within which the fuel and atomizing medium are mixed and from which the mixture is discharged as an atomized spray. The nozzle tip of the invention provides a more effective spray distribution which requires reduced fuel pressures. The effects of plugging of one or more of the ports through which the atomizing medium is conducted are minimized.

3,739,991

VIBRATING MILL

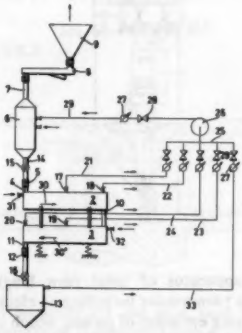
Peter Wehren; Helmut Haas, and Gerhard Demel, all of Cologne, Germany, assignors to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne, Germany

Filed Sept. 29, 1971, Ser. No. 184,795

Claims priority, application Germany, Oct. 5, 1970, P 20 48 810.2

Int. Cl. B02c *19/16*

U.S. Cl. 241—45 **7 Claims**



In a vibrating mill installation having a horizontally extending grinding chamber between a closed material feed device and a closed material discharge device the grinding chamber is provided between its ends with a plurality of serially arranged openings from which portions of gas are withdrawn by pipelines leading to the suction side of a blower or pump, while a cooling agent —such as liquid nitrogen—is introduced into the grinding chamber and cools the material being ground therein. The pressure side of the blower or pump is connected with the material feed device so that the still cool gas withdrawn from the grinding chamber is used to subject the material in the feed device to a preliminary treatment before the material to be ground enters the grinding chamber of the vibrating mill.

3,739,992

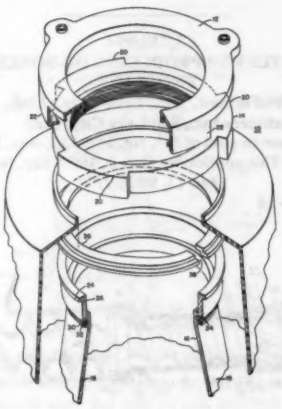
SECURING MEANS FOR DISPOSER SOUND JACKET

Jack E. Bebinger, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 29, 1971, Ser. No. 157,899

Int. Cl. B02c *18/42*

U.S. Cl. 241—46 B **6 Claims**



The instant invention provides a sound deadening jacket arrangement for enveloping a food waste disposer so as to prevent a large amount of noise generated by the moving parts of the food waste disposer from passage into the area where the disposer is situated. The disposer sound jacket is suspended in loose (sufficient to permit its rotation) depending fashion from the garbage disposer, proper, so as to be spaced from the food waste disposer housing. The loose suspension of the food waste disposer sound jacket limits the amount of noise being transmitted outwardly therefrom as the food waste disposer operates and also permits rotation of the disposer sound jacket during installation of the food waste disposer so that the disposer sound jacket may drivingly move the disposer housing to aid in alignment of the inlet and outlet of the disposer with the plumbing situated underneath the sink where the disposer is mounted.

3,739,993

GRINDING MILLS

John Edward Nelson, Montreal, Quebec, and Rhual Laurent Guerguerian, LaSalle, Quebec, both of Canada, assignors to Dominion Engineering Works, Limited, Lachine, Quebec, Canada

Filed Apr. 26, 1971, Ser. No. 137,448

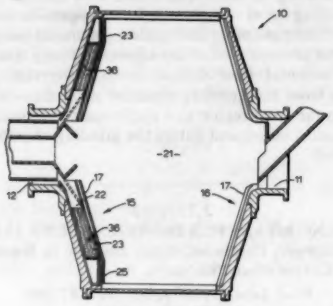
Claims priority, application Canada, May 11, 1970, 82368

Int. Cl. B02c *17/00, 17/18*

U.S. Cl. 241—70 **4 Claims**

An autogenous grinding mill of large diameter has curved lifters to give improved radially inward displacement of reduced material, after passage through the primary grates;

and secondary grates in the form of box sections combined with the curved surfaces of the lifters, for segregation of



totally reduced fines, with passage of intermediately sized material back to the mill reduction section.

3,739,994

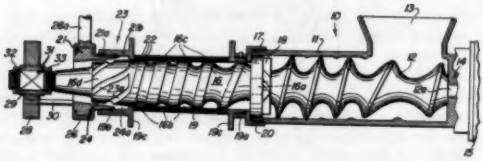
APPARATUS FOR PRODUCING DE-BONED MEAT PRODUCTS

Archie Rae McFarland, Salt Lake City, Utah, assignor to Beehive Machinery Inc., Salt Lake City, Utah

Continuation-in-part of Ser. No. 593,532, Nov. 10, 1966, abandoned. This application Dec. 3, 1969, Ser. No. 881,686

Int. Cl. B02b *7/04*

U.S. Cl. 241—74 **14 Claims**



Material obtained from animals, poultry, or fish and containing edible flesh along with normally inedible relatively hard or tough components, such as bone, gristle, tendons, etc., is fed in ground condition into one end of a perforated conduit that has a conveyor srew therein which progressively decreases in conveying capacity from the feed end of the conduit to an imperforate discharge end thereof. Such inedible components are compacted within the imperforate discharge end of the conduit by an extension of the conveyor screw prior to discharge following build-up and conveyance along the interior surface of the perforate portion of the conduit as a filter mat through which edible flesh is forced toward and through the perforations of the conduit to provide a substantially bone-free edible product. The discharge passage surrounding the exeension of the conveyor screw can be varied in size, preferably by a tapered ring that is movable back and forth axially of the conveyor screw extension, and preferably the spacing between conveyor screw and conduit is variable. The forward faces of the conveyor screw flights are preferaby concave to provide a forwardly projecting circumferential overhang that tends to keep particles of bone near the axis of the screw, and the conduit wall thickness is unusually thick so as to withstand high pressures. Unusually high production rates can be obtained by feeding finely ground material into the conduit by means of a hgh pressure pump. The discharged and normally inedible components can be slurried in a digestant liquid and the digested material recovered as a food product by the application of centrifugal force. In instances where some minute particles of bone are discharged with the fleshy components, they can be homogenized by subjecting such flesh components to an attrition operation.

3,739,995

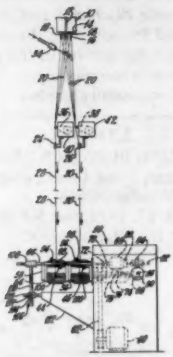
APPARATUS FOR PACKAGING LINEAR MATERIAL

Leo Alex Oswald, Huntingdon, Pa., assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Apr. 19, 1971, Ser. No. 134,989

Int. Cl. B65h *54/28*

U.S. Cl. 242—18 G **3 Claims**



Apparatus for packaging linear material such as glass strand on a collector and using a traversing arrangement including rotary traversing means on an elongated member with two supports engaging the elongated member on opposite sides of the rotary traversing means; at least one of the supports being stationary and holding the elongated member for rotating and axial reciprocating motion.

3,739,996

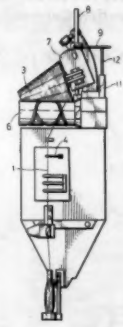
MEASURING APPARATUS OF TOTAL YARN LENGTH WOUND IN PACKAGE ON A YARN WINDER

Isamu Matsui, Kyoto, and Yutaka Ueda, Nara, both of Japan, assignors to Murata Machinery Ltd., Kyoto, Japan

Filed June 29, 1971, Ser. No. 157,935

Int. Cl. B65h *61/00, 63/08*

U.S. Cl. 242—39 **8 Claims**



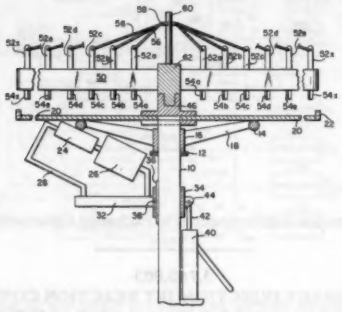
A measuring apparatus of total yarn length wound in package form on a yarn winder including an electric circuit for prescribedly delaying emission of pulses, which correspond to each cycle rotation of a yarn traversing drum rotationally carrying a growing package in contact thereon for winding rotation or its drive motor, to a counter part of the emitted pulses from starting of winding operation.

3,739,997

SQUARE PATTERN STRIP WINDING MEANS

Paul R. Edwards, Redondo Beach, Calif., assignor to Edwards Enterprises of Orlando Inc., Orlando, Fla.

Filed Nov. 17, 1971, Ser. No. 199,655
Int. Cl. B65h 17/06
U.S. Cl. 242—67.1 R 21 Claims



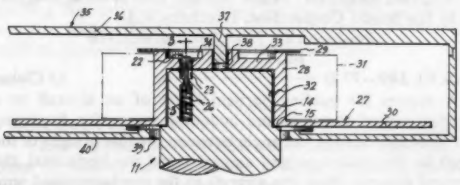
A winding machine for winding strips of plant growth material in a square pattern on a pallet which includes a rotatable pallet means; a corner forming means comprising a cruciform support means removably mounted on the pallet means to rotate therewith, spaced above the pallet means and having its arms spanning the pallet means, a plurality of corner form means slidably mounted on the support means and spaced along the arms of the support means to form square patterns, of progressively larger size, of groups of four of the form means from complementary ones of the form means of each of the arms of the support means, and means for sliding the form means toward the pallet means; and drive means for rotating the pallet means and the support means. Where a strip of plant growth material is to be transferred from a full pallet to an empty pallet, the full pallet is mounted on a pallet drive means adjacent the winding machine and a guide means and speed regulating means is placed adjacent the two pallets to guide the strip of plant growth material as it passes from one pallet to the other and adjust the speed of the drive means of at least one of the pallets to compensate for variations in the size of the winding of strip material on the respective pallets as well as other variations in the speed of travel of the strip material.

3,739,998

REEL DRIVING DEVICE

Hanjiro Esashi, and Katsuyoshi Kawamata, both of Miyagi, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Mar. 17, 1972, Ser. No. 235,647
Claims priority, application Japan, Mar. 30, 1971, 46/22903
Int. Cl. B65h 17/02
U.S. Cl. 242—68.3 8 Claims



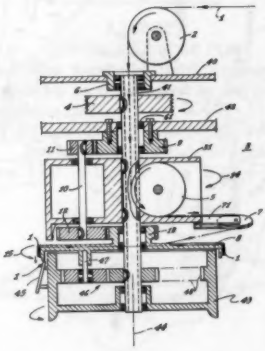
A tape reel intended for use in a tape recording and/or reproducing apparatus is provided with a coaxial socket having an end wall with one or more apertures therein spaced radially from the socket axis, and the apparatus includes a reel-driving device comprising a rotated shaft which is inserted into the reel socket and which has at least one coupling pin projecting from the shaft's end surface and engaging in an aperture of the socket's end wall, such coupling pin having a peripheral surface which is undercut in the direction toward the shaft's end surface, for example, by being frusto-conical, so that the engagement of that peripheral surface with the perimeter of the aperture urges the tape reel onto the reel drive shaft in response to the rotation of the latter.

3,739,999

ADVANCING APPARATUS FOR COILING ELONGATED FLEXIBLE MATERIAL

Hans Frisch, Dusseldorf, Germany, assignor to FRISCH Kabel-und Verseilmaschinenbau GmbH, Ratingen, Germany

Filed June 23, 1971, Ser. No. 155,864
Claims priority, application Germany, June 24, 1970, P 20 31 050.3
Int. Cl. B21c 47/14
U.S. Cl. 242—82 3 Claims



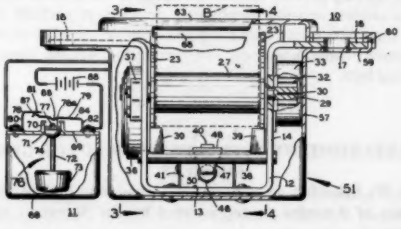
Apparatus for advancing elongated, flexible element such as bare or insulated wire, fed into an axis and from the axis to a coiling head, rotating on the axis for coiling the wire on a drum which rotates in opposite direction, the respective lowest coiled loop drops from the drum for further storage. Rotation of the drum is derived from rotation of the head by a planetary gearing.

3,740,000

SAFETY BELT MECHANISM

Takezo Takada, Hikone, Japan, assignor to Takata Kojyo Co., Ltd., Tokyo, Japan

Filed July 12, 1971, Ser. No. 161,682
Int. Cl. A62b 35/00
U.S. Cl. 242—107.4 4 Claims



An automatic locking safety belt takeup reel includes a U-shaped bracket supporting a spring biased belt rewind reel having ratchets at opposite ends and a shaft supported by the bracket carries pawls movable into and out of engagement

with the ratchets with the rocking of the shaft. A solenoid mounted on the bracket cross-piece actuates an armature connected by a lost motion link to a crank arm on the shaft. The solenoid is connected to a voltage source through an inertia or attitude sensing switch to energize the solenoid and lock the reel by the pawl and ratchet engagement open tilting or rapid deceleration of the vehicle mounting the switch.

3,740,001

STRIP TAKE-UP THREADING DEVICE

Richard J. Wroblewski, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 3, 1971, Ser. No. 139,494
Int. Cl. B65h *75/28, 25/04*
U.S. Cl. 242—210 **15 Claims**

A take-up device, adapted to receive a hub on a rotatable support member of such device and to wind strip material onto a hub so received, is provided with a plurality of guide members which are movable to respective threading positions surrounding a received hub for directing strip material against the received hub. One of the guide members is movable to several sensing positions (1) for detecting the presence at the support member of a hub without strip material wound thereon, (2) for detecting the absence of a hub at the support member and (3) for detecting the presence at the support member of a hub with a predetermined length of strip material wound thereon. A control is operatively associated with the sensing guide member and a strip feeding mechanism for preventing strip threading either in the absence of a hub at the support member or should a hub with a predetermined length of strip material wound thereon be received on the support member. Upon threading of strip material onto a received hub, a trailing portion of such material is tensioned; whereupon, a tension sensing mechanism actuates retraction of the guide members other than the sensing guide member from the outermost convolution of strip material wound onto the received hub.

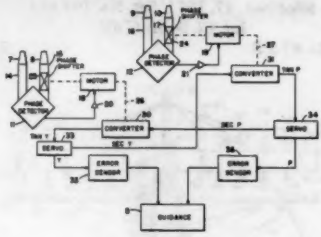
3,740,002

INTERFEROMETER TYPE HOMING HEAD FOR GUIDED MISSILES

Jacob W. Schaefer, Watchung, N.J., assignor to The United States of America as represented by the Secretary of the Army

Filed Nov. 23, 1966, Ser. No. 596,736
Int. Cl. G01s *3/42*
U.S. Cl. 244—3.19 **6 Claims**

Two detecting systems are used to generate yaw and pitch error signals for obtaining a collision course with a target, and



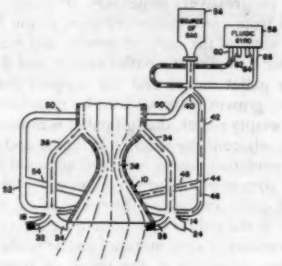
the systems are interconnected to exchange information.

3,740,003

SECONDARY INJECTION/JET REACTION CONTROL

Vernon Hall Ayre, and J. C. Dunaway, both of Falkville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 13, 1972, Ser. No. 234,091
Int. Cl. F41g *7/00;* **B64c** *15/06*
U.S. Cl. 244—3.22 **3 Claims**



The present invention incorporates a missile control technique which combines secondary injection with jet reaction to control the flight path of the missile. The technique uses four double opposed jet units and bi-stable fluid amplifiers to selectively control the flow of fluid through the nozzles.

3,740,004

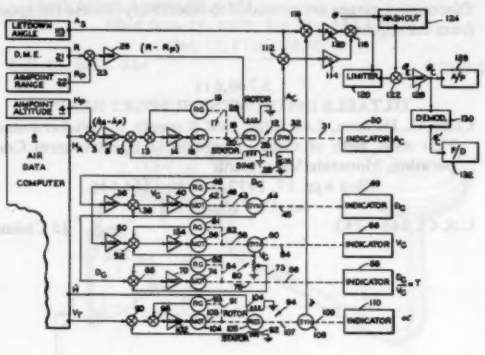
VERTICAL FLIGHT PATH COMPUTER

Jerry Doniger, Montvale, N.J.; Carson Morse, Dayton, and Siegfried Knemeyer, Yellow Springs, both of Ohio, assignors to The Bendix Corporation, Teterboro, N.J.

Filed Dec. 27, 1967, Ser. No. 693,970
Int. Cl. B64c *19/00*
U.S. Cl. 249—77 D **13 Claims**

A system for guiding vertical flight of an aircraft to a predetermined aimpoint and including means for displaying for pilot information the angle between the line of sight of the craft to the predetermined aimpoint and the horizontal, the ground distance from the aircraft to the predetermined aimpoint, the ground speed of the aircraft, the time to reach the aimpoint and the angle between the aircraft velocity vector and the horizontal. The craft is guided during vertical maneuvers in response to a signal corresponding to the angle between the line of sight of the aircraft to the predetermined aimpoint and the horizontal, a signal corresponding to the

angle between the aircraft velocity vector and the line of sight of the aircraft to the predetermined aimpoint, and a signal corresponding to the angle between the aircraft velocity vector and the horizontal.



3,740,005

ROCKET ASSISTED EJECTION SEATS

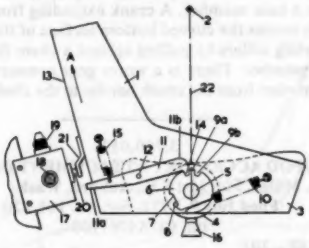
Alfred James Rivers, Rowledge, Near Farnham, England, assignor to The Secretary of State for Defense in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed July 1, 1971, Ser. No. 158,735

Claims priority, application Great Britain, July 1, 1970, 31879/70

Int. Cl. B64d *25/10*

U.S. Cl. 244—122 AD **10 Claims**



A rocket assisted ejection seat has means whereby the thrust line of the rocket motor may be selected, during an ejection sequence, according to the airspeed of the aircraft at the time of the ejection. The thrust line is locked relative to the seat before the rocket motor is fired. A two position arrangement described in detail has the thrust line locked in a position suitable for low speed ejection, selection of, and locking into position of a thrust line suitable for high speed ejection being effected as the seat moves relative to the aircraft at ejection above a predetermined airspeed.

3,740,006

AIRCRAFT CABIN OUTFLOW VALVE WITH TORQUE REDUCTION AND NOISE ABATEMENT MEANS

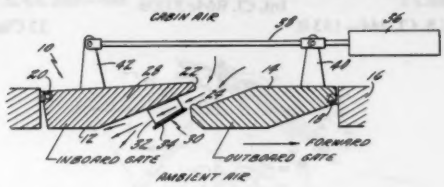
John F. Maher, Enfield, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed July 29, 1971, Ser. No. 167,115

Int. Cl. B64c *1/14*

U.S. Cl. 244—129 D **5 Claims**

Noise abatement and actuation torque reducing means are added to a cabin outflow valve of the type having an inboard and outboard gate each being pivotally mounted adjacent the skin of the aircraft so that the inboard gate moves into the cabin and the outborad gate moves into the slipstream and the outer ends are formed so as to define a thrust recovery nozzle in the partially open position. The noise abatement and torque reduction means includes a duct-like member mounted on the under surface of the inboard gate adjacent the outboard gate having its leading edge in axial alignment with the discharge flow through the gate valve and discharging therefrom in substantially an axial direction when in the thrust recovery position.



3,740,007

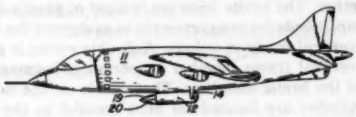
COMBAT RESCUE POD

Alexander E. Waller, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 29, 1971, Ser. No. 138,412

Int. Cl. B64d *25/02*; A62b *1/16*

U.S. Cl. 244—137 P **10 Claims**



A rescue pod for retrieving downed pilots from hostile environments. A pod is suspended from an aircraft with fuel occupying its internal space. The fuel is used during flight to the downed crewmen or transferred to an internal tank before rescue. Upon reaching the rescue area, a hoisting line is lowered from the pod to the man awaiting rescue who is then taken into the internal pod chamber. The pod is then closed and raised to a horizontal position. The crewman is protected from air loads, hot jet efflux and small arms fired by the pod.

3,740,008

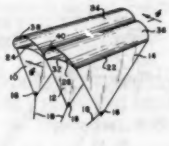
MULTI-KEELED KITE

Edwin L. Grauel, 774 Elmwood Terrace, Rochester, N.Y.

Filed Oct. 12, 1971, Ser. No. 188,105

Int. Cl. B64c *31/06*

U.S. Cl. 244—153 R **8 Claims**



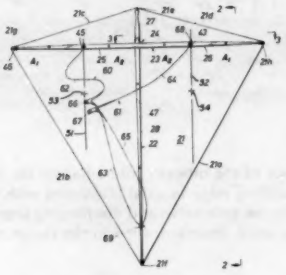
A multi-keeled kite including a horizontal panel between the keels and a panel overlying the horizontal panels and forming therewith an open ended passage of uniform cross section extending from the leading to the trailing end of the kite. The passages are inflated by air movement and aid in maintaining the kite in flying configuration and in increasing lift of the kite.

3,740,009

KITE

Malcolm Rex Curtis, 3224 Timmons Lane, No. 157, Houston, Tex.

Filed Mar. 15, 1971, Ser. No. 124,046
Int. Cl. B64c *31/06*
U.S. Cl. 244—153 R **22 Claims**



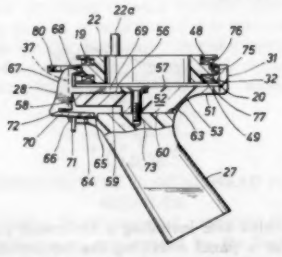
This disclosure relates to kite assemblies and constructions wherein the structural members are comprised of plastic materials and structured to maximize strength and minimize weight. Means are provided to releasably interconnect the transverse or horizontal frame member and the longitudinal or vertical frame member in a locked position. The upper end of the vertical frame member is provided with shock-absorbing means which can be integrally formed on the vertical member by means of an appropriate curvature of a semi-resilient portion member. The bridle lines are formed of plastic and have hook-shaped ends for snap retention in eyelets on the horizontal and vertical frame members. A double eyelet is provided on the vertical frame member to permit adjustment of the length of the bridle members. The eyelets on the horizontal frame member are located on lines parallel to the vertical frame member which substantially intersect the center of pressures of the kite cover. Nibs are provided along the corresponding openings in a kite cover to permit distribution and equalization of stress. A bayonet type connection is provided for the ends of the frame members to be received in reinforced openings in the kite cover. In one form, the forward face of the kite cover is disposed at an angle to increase the flight mobility.

3,740,010

KITE CONTROLLER

Malcolm Rex Curtis, 3224 Timmons Lane, No. 157, Houston, Tex.

Filed Oct. 22, 1970, Ser. No. 82,940
Int. Cl. B64c *31/06*
U.S. Cl. 244—155 A **14 Claims**



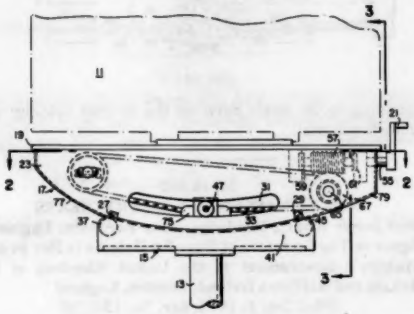
A dual line flight controller is disclosed and consists of a hand manipulatable support carrying a dual line spool or reel mounted for rotation about a vertical axis for paying out and for reeling in control lines. Spaced-apart guide members on the support receive individual control lines which are separately spooled on the single reel. A trigger-operated brake is provided to positively control spooling of the control lines and also functions to retain the spool within the support. Disconnect means are provided to selectively release the spool from the support.

3,740,011

TILTABLE INSTRUMENT SUPPORT HEAD

Colin G. Dickson, Los Altos, and Kenneth A. Wickersheim, Palo Alto, both of Calif., assignors to Spectrotherm Corporation, Mountain View, Calif.

Filed Apr. 17, 1972, Ser. No. 244,646
Int. Cl. F16m *11/12*
U.S. Cl. 248—183 **15 Claims**



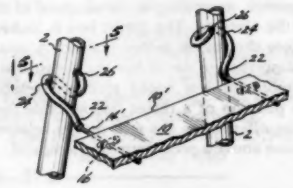
A cradle for attachment to an instrument is supported along a curved bottom surface against gravity by spatially separated rollers on a base member. A crank extending from one end of the cradle moves the curved bottom surface of the cradle over its supporting rollers by pulling against a chain that is fixed to the base member. There is a worm gear connection communicating motion from the crank handle to the chain.

3,740,012

TRIPOD ACCESSORY ATTACHMENT DEVICE

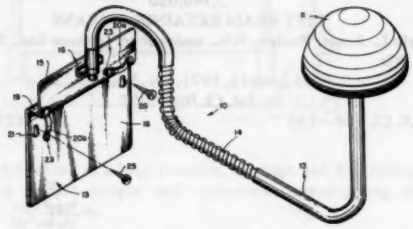
Harold R. Millen, 506 21st S.E., Auburn, Wash.

Filed July 9, 1971, Ser. No. 161,220
Int. Cl. A47f *7/00*
U.S. Cl. 248—201 **6 Claims**



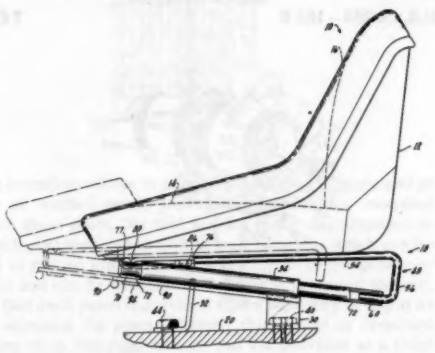
A device is disclosed for supporting artist's accessories on the tripod of an easel or the like. The device comprises a pair of spaced parallel coplanar arms which are connected the accessory to project therefrom, and to be rotatable about the longitudinal axes thereof, and which have free-ended convolutions on the projected end portions thereof that are rotated into a bind fit with a pair of legs in the tripod when the arms are generally horizontally disposed adjacent the legs and the device is rested thereon.

3,740,013
WIG TOTE
Alone M. Bentley, and Laurie A. Wilson, both of 4739 W. 164th Street, Lawndale, Calif.
Filed June 16, 1971, Ser. No. 153,579
Int. Cl. F16m *13/02*
U.S. Cl. 248—224 4 Claims



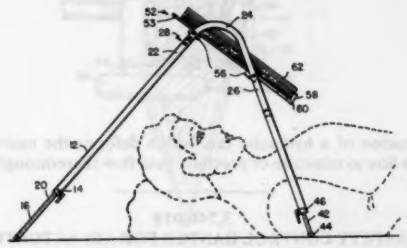
A device for holding a hairpiece such as a wig is disclosed. A half-crown styrofoam member is provided to hold the hairpiece. The crown member is supported by a tubular arm which is in turn supported by a unique bracket which permits the wig tote to be transported in an automobile, mounted on a piece of furniture, or readily attached to a wall member and the like.

3,740,014
ADJUSTABLE SEAT ASSEMBLY FOR VEHICLE
Richard F. Swenson, Milwaukee, and Claude B. Hisey, West Allis, both of Wis., assignors to Swenson Corporation, Red Granite, Wis.
Filed Jan. 20, 1972, Ser. No. 219,339
Int. Cl. F16m *7/24*
U.S. Cl. 248—373 12 Claims



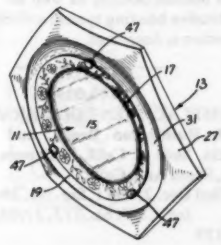
An adjustable seat assembly for a vehicle comprises a pair of spaced-apart parallel support tubes which are mounted on the vehicle by means of a support bracket. Seat attachment means are provided and include a seat attachment plate and a pair of seat tubes which are slidably or telescopically engageable with the front ends of the tubes. A U-shaped torsion bar has two reversely-curved ends which are slidably or telescopically engageable with the rear ends of the seat tubes. Means are provided for bolting a seat to an attachment plate underlying the U-shaped end of the torsion bar so as to entrap the U-shaped end of the torsion bar therebetween. The seat, seat attachment means and torsion bar are slidable as a unit longitudinally with respect to the support tubes to desired positions. A spring-biased notched locking bar is pivotably connected to the attachment means and any one of its notches can engage the edge of slot in the tube support bracket to lock the seat in a desired position.

3,740,015
BOOK SUPPORTING DEVICE
John F. Adams, 55 Lee Road, Chestnut Hill, Mass.
Filed May 17, 1971, Ser. No. 144,072
Int. Cl. A47b *23/00*
U.S. Cl. 248—445 2 Claims



A book supporting device adapted for use by a person in a reclining position comprising a transparent inclined surface supported between laterally spaced angularly extending support members, the legs of the support members extending into telescopic engagement with the frame thereof and maintained in fixed relation therein by clamp members.

3,740,016
DECORATIVE PLATE DISPLAY DEVICE
Theodore H. Buescher, La Grange Park, Ill., assignor to Kraftco Corporation, New York, N.Y.
Filed Nov. 3, 1971, Ser. No. 195,214
Int. Cl. A47g *1/24*
U.S. Cl. 248—488 4 Claims

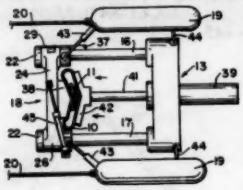


A device for supporting a plate such as a flatware dinner plate in an attitude suitable for display includes a frame having a central opening defining an interior frame edge and at least two hooks adjustably connected at the back side of the frame and extending through the opening to a position adjacent the front surface of the frame to securely cradle the plate.

3,740,017
CLAMPING DEVICE FOR CLOSING AN UNCONTROLLABLY FLOWING SUBMERGED WELL
Ivo C. Pogonowski, c/o Texaco Inc., P.O. Box 425, Bellaire, Tex.
Filed Dec. 30, 1970, Ser. No. 102,688
Int. Cl. F16l *55/14*
U.S. Cl. 251—5 7 Claims

The invention relates to an apparatus which embodies a clamping device that is submergible, and remotely operable to close an offshore well casing and flow line. The apparatus includes a clamping head formed with spaced apart arms which define an opening for engaging the well casing. A displaceable

truss is carried on one arm and engageable with the other whereby to fasten said clamping device to the casing prior to

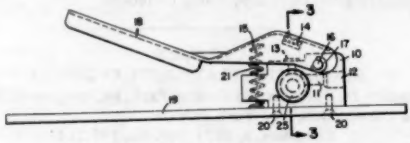


actuation of a hydraulic ram which deforms the casing and flow line to minimize or preclude fluid flow therethrough.

3,740,018
SAFETY CONTROL HANDLE FOR AIR ACTUATED EQUIPMENT

Mark W. Cleary, San Francisco, Calif., assignor to Clemco-Clementina Ltd., San Francisco, Calif.

Filed Jan. 28, 1972, Ser. No. 221,623
Int. Cl. F16k *35/00*
U.S. Cl. 251—94 **10 Claims**

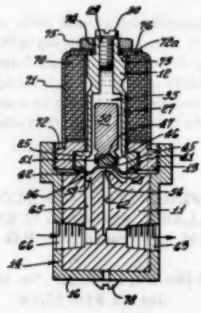


A control handle for air actuated equipment is disclosed which includes means for preventing the control handle from being operated unintentionally as well as "dead man" safety features. An abrasive blasting system utilizing the control handle of this invention is described.

3,740,019
ZERO DISPLACEMENT DIAPHRAGM VALVE

Archie Kessell, Huntington Beach, and Charles Stephens Phelan, Tustin, both of Calif., assignors to Rohe Scientific Corporation, Santa Ana, Calif.

Filed Dec. 2, 1971, Ser. No. 204,278
Int. Cl. F16k *7/12, 31/06*
U.S. Cl. 251—129 **1 Claim**

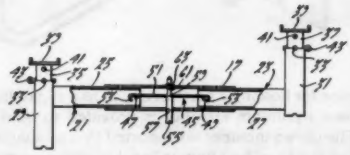


A fluid valve which upon opening or closing does not displace any fluid in the system because the volume in the fluid line is maintained constant. This is accomplished by means of an actuator operated flexible diaphragm which faces the fluid line and which, on its opposite side, faces a sealed chamber completely filled with a liquid, such as water. When the diaphragm is moved away from the chamber, its central portion closes the valve. Since the volume in the chamber will not change, the diaphragm will flex and accordingly the volume in the fluid line will not change. The actuator is within the sealed chamber and is electromagnetically movable by a coil as in a solenoid.

3,740,020
LIFT BEAM RETAINING MEANS

Lyle L. Arnes, Racine, Wis., assignor to Tenneco Inc., Racine, Wis.

Filed June 11, 1971, Ser. No. 152,220
Int. Cl. B66f *3/00*
U.S. Cl. 254—134 **15 Claims**

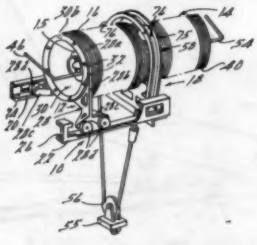


A lifting beam for a jack of the one end lift type has slidable end sections and a latch arrangement for holding them in place to prevent accidental removal.

3,740,021
HOIST

Donald E. Sommer, Birmingham, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Sept. 29, 1970, Ser. No. 76,514
Int. Cl. B66d *1/00*
U.S. Cl. 254—186 R **7 Claims**



A cable-type hoist mechanism in which the cable drum is journalled on a carriage arranged to ride along a horizontal track and a single helical groove is provided on the exterior cylindrical surface of the drum; a portion of the helical groove receives the wound cable and a vacant portion of the groove coacts with a partial ball nut to thread the drum axially along the track in response to positive rotation of the drum by an air motor mounted on the carriage.

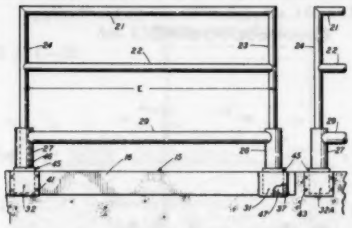
3,740,022
LOADING DOCK SAFETY GUARD

Samuel J. DiGiovanni, 4166 Fauna St., Montclair, Calif.

Filed Feb. 14, 1972, Ser. No. 226,150
Int. Cl. E04h *17/14*
U.S. Cl. 256—24 **6 Claims**

A spaced pair of U-shaped anchor receptacles is fixed to the side of the loading dock and a short sleeve rises from each

receptacle. The sleeves are hollow to accept a fence section with a horizontal railing at a low position and a second

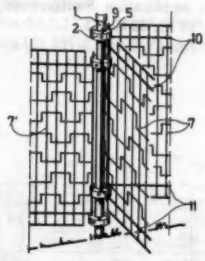


horizontal railing at a high position, the high and low railings guarding against people and equipment overstepping the dock.

3,740,023
FENCING

Frans Bruggeman, Zulzeke, Belgium, assignor to N. V. Bekaert S.A., Zwevegem, Belgium

Filed Apr. 10, 1972, Ser. No. 242,455
Claims priority, application Belgium, Apr. 13, 1971, 765622
Int. Cl. E04h *17/24*
U.S. Cl. 256—24 **2 Claims**



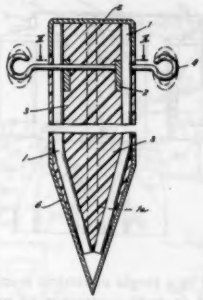
This invention relates to a fencing consisting of posts and of panels of welded mesh, trelliswork or suchlike, mounted between these posts, the said fencing being characterized in that each post is provided with at least two rings which can be shifted or moved longitudinally with respect to the post over the post and can be fastened to the post at any point thereof, and in that each panel is provided with a rigid wire or rod at its edges adjoining the posts, whereby thickenings or crossbars emerging from this rigid wire or rod are provided at a short distance from both extremities of this rod, while a first set of two rings of each post is provided with longitudinal apertures corresponding to each other for engaging the extremities of the rigid wire or rod of at least one of the panels adjoining this post.

3,740,024
REINFORCED POST OF SYNTHETIC PLASTIC MATERIAL

Walter Hellerich, Heilbronn, and Volker Sadowski, Biesfeld, both of Germany, assignors to Arbed S.A. Arbed-Felten & Guilleaume Vereinigte Drahtwerke, Cologne, Germany

Filed May 21, 1971, Ser. No. 145,845
Int. Cl. E04h *17/20*
U.S. Cl. 256—51 **5 Claims**

An elongated post body is composed of synthetic plastic material in which metallic reinforcing elements are embedded and extend longitudinally. One or more stress-transmitting elements are connected with the reinforcing elements, being

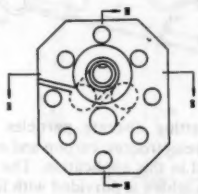


in part embedded in the material of the post body and extending in part beyond the post body where they may be provided with hooks, eyes or the like.

3,740,025
APPARATUS FOR CONVEYING, MIXING AND HOMOGENIZING HIGH VISCOSITY MATERIALS

Eberhard Ruf, Bergen-Enkheim, Germany, assignor to Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen, Frankfurt am Main, Germany

Filed Dec. 16, 1971, Ser. No. 208,701
Claims priority, application Germany, Dec. 18, 1970, P 20 62 469.5
Int. Cl. B01f *7/24*
U.S. Cl. 259—7 **10 Claims**



In a pump for conveying, mixing and homogenizing a highly viscous material wherein an additive is to be admixed, improved mixing is obtained by providing a casing communicating with the pump outlet. The casing contains a rotatable worm synchronously connected to the pump shaft. Rotation of worm induces mixing of the additive and viscous material. The improved pump is particularly suited for linear high polymers or copolymers.

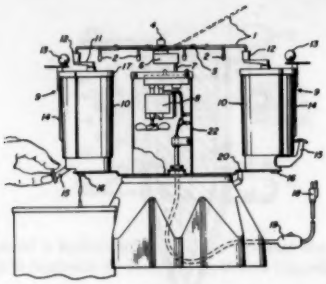
3,740,026
LIQUID AGITATOR AND DISPENSING SYSTEM

Joseph V. Wilke, Chicago, Ill., assignor to Graco Inc., Minneapolis, Minn.

Filed Jan. 27, 1972, Ser. No. 221,323
Int. Cl. B01f *7/16*
U.S. Cl. 259—67 **7 Claims**

A series of agitators driven by a single motor that is capable of stirring several liquid or paint colorant containers at the same time. The agitators may be selectively moved to engage or disengage their respective containers to allow manual stir-

ring or filling of any desired number. Each agitator is driven through a circular stirring motion by a rotating motor shaft



which is attached to a single eccentric member. A dispensing meter is attached to each container to precisely meter the desired amount of stirred liquid or paint colorant.

3,740,027

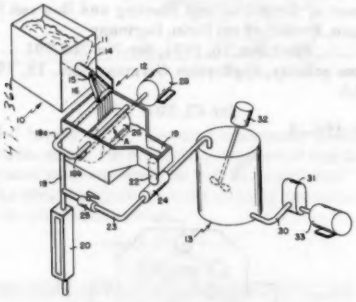
PARTICLE WETTING APPARATUS

Kalman Kormos, North Scituate, R.I., assignor to General Signal Corporation, Rochester, N.Y.

Filed Apr. 3, 1972, Ser. No. 240,500

Int. Cl. B01f *7/12, 15/02*

U.S. Cl. 259—69 **10 Claims**



Apparatus for wetting discrete particles of dry powder material such as polyelectrolites, carbon and other hard to wet material, is disclosed in this application. The apparatus comprises a wetting tank which is porvided with liquid supply and discharge mechanisms and a rotary drum which is only partially immersed in the liquid contained in the wetting tank. As the drum rotates it carries a thin layer of liquid on the surface portions not immersed in the liquid and also agitates the liquid in the tank. The powder is carried in a feeding hopper and discrete particles are discharged to the layer of liquid carried by the drum and thereafter the individually wetted particles are discharged into the liquid in the wetting tank where it starts to form a solution. The solution flows through the discharge mechanism and into a separate aging tank where the solution is finally formed. In one preferred embodiment of the invention a special spreader nozzle is used to spread the particles along a straight line on the drum.

3,740,028

INDUCTIVE CAVITATOR

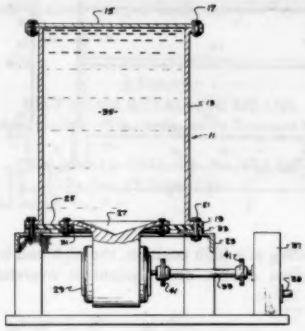
Albert G. Bodine, 7877 Woodley Avenue, Van Nuys, Calif.

Division of Ser. No. 856,953, Sept. 11, 1969, Pat. No. 3,633,877. This application Dec. 9, 1971, Ser. No. 206,567

Int. Cl. B01f *11/00*

U.S. Cl. 259—72 **3 Claims**

A tank for containing a liquid whose bottom portion is partially comprised of a housing for an inductive oscillator having a pair of rotors. The rotors move in opposite directions so as to



provide an inphase reaction normal to the base of the tank to establish cavitation in liquid disposed in the tank.

3,740,029

APPARATUS FOR REMOVING SHEETS FROM STACKS

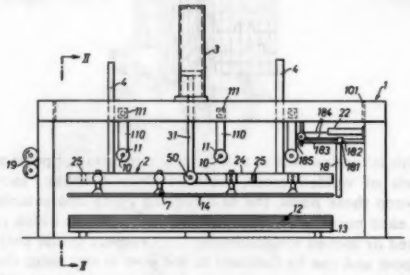
Fernand Bays, Lausanne, Switzerland, assignor to Vidosa S.A., Crissier, Switzerland

Filed Apr. 19, 1972, Ser. No. 245,496

Claims priority, application Switzerland, Apr. 23, 1971, 5971/71; Mar. 22, 1972, 4277/72

Int. Cl. B65h *5/10, 5/14*

U.S. Cl. 271—11 **22 Claims**



Apparatus for removing sheets from a stack of sheets includes a fixed frame and a movable frame mounted to the fixed frame, the movable frame being at least vertically movable relative to the fixed frame from a lower position adjacent a stack of sheets to an upper position. Further included is a plurality of suction grippers mounted to the movable frame for engagement with the top sheet of the stack, and a plurality of rotatable magnetic rollers mounted to the fixed frame for engaging and supporting a sheet which is raised up by the suction grippers and movable frame. A movable carrier member is provided for removing the sheet supported by the magnetic rollers, and means is provided for displacing the suction grippers relative to the movable frame to clear the sheet supported by the magnetic rollers during movement of the carrier member, so that the movable frame can be lowered past the supported sheet to engage a further sheet from the stack during removal of the supported sheet without interfering with the removal operations.

3,740,030

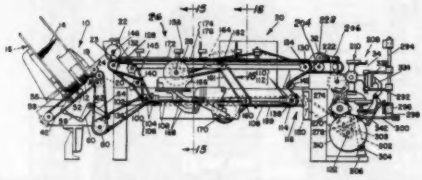
APPARATUS FOR PRODUCING CARTONS

John W. Scully, Raynham, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.

Division of Ser. No. 813,172, April 3, 1969, abandoned. This application July 12, 1971, Ser. No. 161,613

Int. Cl. B65h *1/66, 3/06*

U.S. Cl. 271—35 4 Claims



Apparatus comprising a side seaming device adapted to fold a prescored carton blank along two score lines and to provide an adhesively secured side seam to form a flat tube. The apparatus also includes a carton blank feeding device preceding the side seaming device for feeding blanks to the latter and a device following the side seaming device for reverse folding the flat tube along the remaining two score lines.

3,740,031

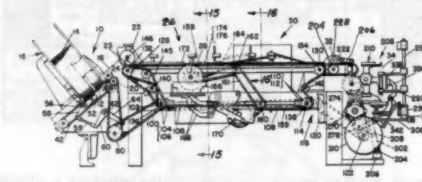
APPARATUS FOR PRODUCING CARTONS

John W. Scully, Raynham, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.

Division of Ser. No. 813,172, April 3, 1969. This application July 12, 1971, Ser. No. 161,612

Int. Cl. B65h *3/04*

U.S. Cl. 271—35 9 Claims



Apparatus comprising a side seaming device adapted to fold a prescored carton blank along two score lines and to provide an adhesively secured side seam to form a flat tube. The apparatus also includes a carton blank feeding device preceding the side seaming device for feeding blanks to the latter and a device following the side seaming device for reverse folding the flat tube along the remaining two score lines.

3,740,032

HELICOPTER TOY

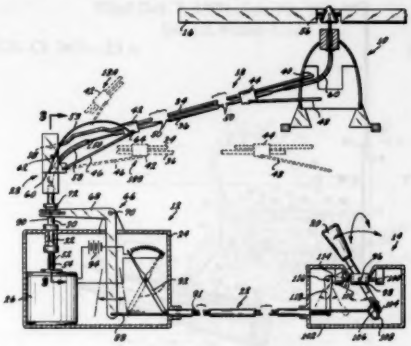
Richard S. Chang, Rolling Hills Estates, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Dec. 16, 1971, Ser. No. 208,572

Int. Cl. A63h *27/12*

U.S. Cl. 272—31 B 7 Claims

A toy helicopter system that can be produced at low cost, and which enables remote control of the flight of a toy helicopter by tilting it. The system includes a housing designed to rest on the ground, and a modified parallelogram boom connecting the housing to the helicopter to control it and to guide a flexible shaft that drives the helicopter rotor from a motor in the housing. A child can make the helicopter fly forward or backward by operating an actuator that twists the boom to alter the pitch orientation of the helicopter so its rotor pulls it forward or backward. One of the arms of the boom is hollow and serves as a guide for a flexible shaft that extends from the housing to the helicopter rotor to drive it.



The hollow arm is shorter than the other arm, and opposite ends of the hollow arm are connected by pivotally mounted links to the housing and helicopter, respectively, and the hollow arm is connected by slide connectors to the other arm.

3,740,033

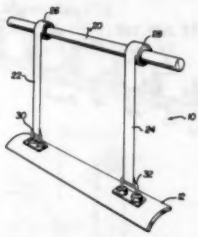
BELT TYPE ISOTONIC EXERCISING DEVICE

Craig D. Kamp, Fort Lauderdale, Fla., assignor to Thomas J. Perri, Pembroke Pines, Fla., a part interest

Filed June 10, 1971, Ser. No. 151,766

Int. Cl. A63b *21/30, 21/00*

U.S. Cl. 272—79 R 5 Claims



An exercising device for carrying out isotonic exercises wherein a rod is connected to the under side of a curved base strip by a pair of flat straps, which are rolled on themselves on the rod, is gripped by a user with a material which slips, and the rod is moved away from the base strip with the straps taut. The rod rotates in the material and the straps unroll from the rod. The force required to move the rod is regulated by the strength of the friction developed which is in proportion to the grip of the user.

3,740,034

COLLAPSIBLE CUE STICK

E. J. Scroggins, Box 596, Kinder, La.

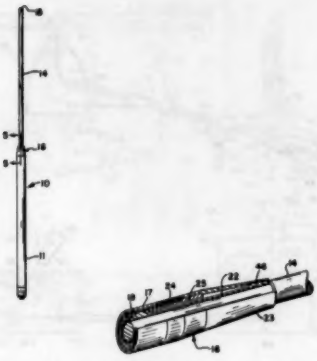
Filed May 17, 1971, Ser. No. 143,815

Int. Cl. A63d *15/08*

U.S. Cl. 273—68 8 Claims

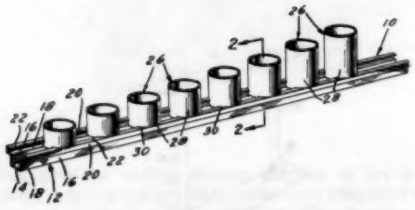
A collapsible cue stick having a butt section within which a tip shaft section can be telescopingly received so that the two sections can be stored one within the other. A bayonet lug

sleeve on the tip shaft section is received in indexed relationship by a thimble mounting sleeve located on the butt section,



with the coacting parts being releasably locked together by a locking thimble so that the two sections are always disposed in the same relative extended position.

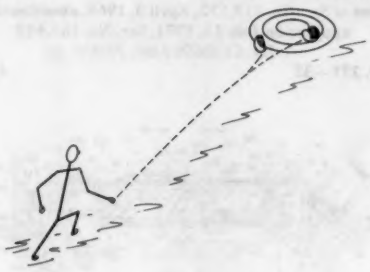
3,740,035
BALL TOSSING GAME HAVING SLIDABLY ADJUSTABLE RECEPTACLES
Milton J. Grossman, Whittier, Calif., assignor to J. Carroll Baisch, Whittier, Calif., a part interest
Filed June 25, 1971, Ser. No. 156,669
Int. Cl. A63b *68/04*
U.S. Cl. 273—96 R **4 Claims**



An action game of skill having an extruded elongated cup support member on which a plurality of cylindrical bodies defining cups are mounted in spaced relation longitudinally of this elongated support member. The ends of the elongated support memberare adapted to be held in the hands of the user and a ball is bounced or tossed from one cup o another cup by appropriate manipulation of the elongated suppor member.

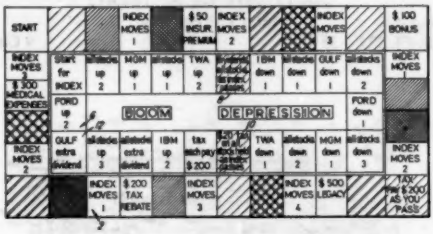
3,740,036
GAME BALL
Alvin G. Ames, P.O. Box 11191, San Diego, Calif.
Filed Mar. 16, 1971, Ser. No. 124,852
Int. Cl. A63b *71/04, 43/00*
U.S. Cl. 273—128 A **4 Claims**

A toy device, equally useful as a game device, capable of rolling, having a geometric shape, preferably a sphere, dissected into two or more complementary parts in such manner that the parts can be separated and reassembled, the device affording amusement and challenge to the solo player, and affording, as well, a means for a contest in which any number of players may take part, as for example: in a rolling activity the object being to induce disintegration of the device when it reaches a target, and in a tossing activity the object being to prevent the device from disintegrating in flight. Also disclosed



is a sphere having a cone or cylinder as a minor part thereof. When the sphere is given a swift spin, the minor part will rise and be ejected.

3,740,037
BOARD GAME APPARATUS
Edward de Bono, 41 North Road, Whilttesford, Cambridge, England
Filed June 11, 1971, Ser. No. 152,153
Claims priority, application Great Britain, June 12, 1970, 28,674/70
Int. Cl. A63f *3/00*
U.S. Cl. 273—134 AF **8 Claims**



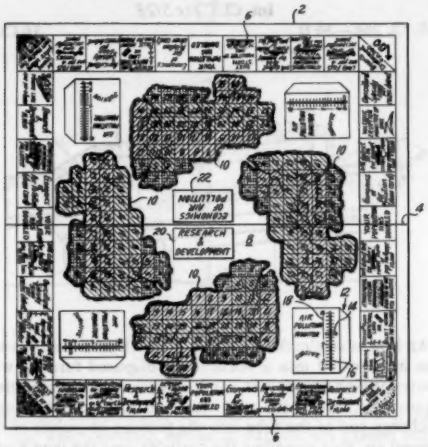
A stock market board game apparatus wherein a playing piece board is marked with a playing piece path along which playing pieces are moved in accordance with the throws of dice or the like. The playing piece path is divided into areas some of which bear indicia that the area corresponds to a respective stock, and others of which bear indicia that a shares-price indicator be moved along a shares-price indicator path. The apparatus includes a shares-price board marked with shares areas equally spaced in columns, each column corresponding to a respective stock, and a share-price list for each column, each list having marked thereon, at spacings equal to the spacing between the share areas in their columns, indications of the price of a share. The prices at one end of each list are higher than at the other and the shares-price indicator path is divided into areas bearing indicia as to movement of the lists in relation to their respective columns so varying the shares prices.

3,740,038
ENVIRONMENTAL BOARD GAME APPARATUS
Ronald W. Feulner, 72 Barclay St., Canajoharie, N.Y.
Filed Feb. 18, 1972, Ser. No. 227,401
Int. Cl. A63f *3/00*
U.S. Cl. 273—134 AD **4 Claims**

A game board has identical land areas depicted thereon and a continuous playing path around its edge. Chance means

direct movements of game pieces along the path and indications on the path direct selection of cards relating to land use.

Each player is assigned a land mass or continent to manage by controlling the use to which subdivisions of his land mass



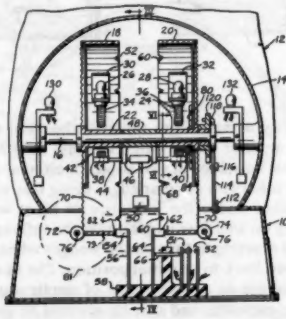
are put in accordance with moves directed by the game apparatus during play. A movable pollution indicator for each player monitors the pollution level of each player's land mass as play progresses.

3,740,039

GAME OR EDUCATIONAL DEVICE

Victor J. Prola, 334 Maple Avenue, Blairsville, Pa.

Filed June 9, 1972, Ser. No. 261,533
Int. Cl. A63f 9/18
U.S. Cl. 273—161 **20 Claims**



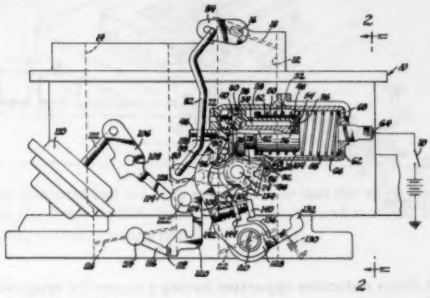
A device having the outward form of a transparent or translucent crystal ball disposed before a human figure with conjointly movable arms and eyelids. Disposed within the crystal ball are a pair of independently rotatable cylindrical members having circumferentially distributed symbols that become visible through a predetermined viewing region of the ball when the cylindrical members are illuminated by a lamp located within each member. Indexing movement of one of the cylindrical members selectively causes illumination of one or both lamps. A cam and lever arrangement assures synchronous movement of the arms and eyelids with said one cylindrical member.

3,740,040

CARBURETOR WITH POWER CHOKE

Reed M. Brown, III, Fairport, and Donald D. Stoltman, Henrietta, both of N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 7, 1971, Ser. No. 187,352
Int. Cl. F02m 1/12
U.S. Cl. 261—23 A **7 Claims**



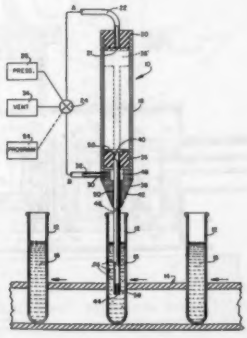
A multiple stage internal combustion engine carburetor has an electrically heated power element which positions a fast idle lever to control engine idle speed and which positions a power element lever that acts through a spring operated intermediate lever to position the choke valve. A vacuum break mechanism and a wide open kick tang on a primary throttle lever act on the intermediate lever to open the choke, and a secondary throttle lockout lever is actuated by the power element lever.

3,740,041

REAGENT MIXING APPARATUS

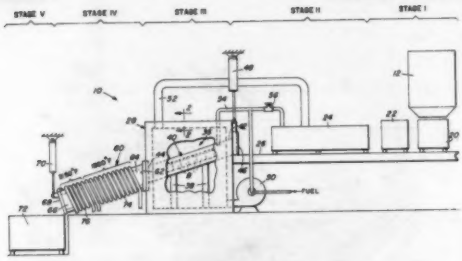
Alan Richardson Jones, Miami, Fla., assignor to Coulter Chemistry, Inc, Maunabo, P.R.

Filed Oct. 14, 1971, Ser. No. 189,311
Int. Cl. B01d 47/02
U.S. Cl. 261—64 **9 Claims**



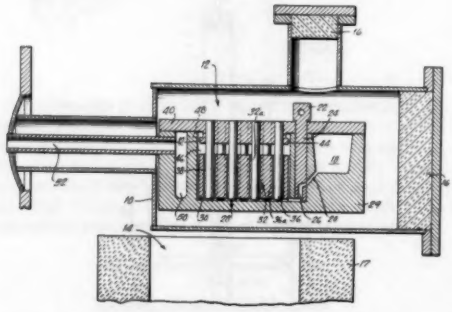
A mixing device adapted to bubble air through a sample solution in a reaction tube without disturbing the tube and without carrying any contaminating portion of the sample solution into the next tube whose sample solution is to be mixed by the same device. The device includes a cylinder having a piston connected with an air injecting probe adapted to be lowered into the reaction tube and to inject bubbles and thereafter to be retracted into the cylinder while at the same time wiping the exterior of the probe by means of a cylindrical curtain of air. Means are provided to retain the probe in retracted position until the next mixing cycle.

3,740,042
DIRECT REDUCTION APPARATUS
Jesse J. Baum, 10419 Kelso Drive, Sun City, Ariz.
Filed Mar. 1, 1971, Ser. No. 119,456
Int. Cl. C21b *1/00*
U.S. Cl. 266—9 **14 Claims**



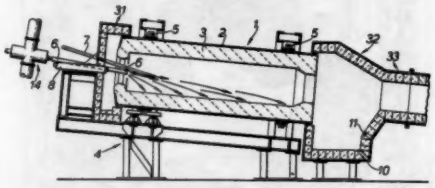
A direct reduction apparatus having a means for briquetting oxide ores or iron, manganese, chrome, and copper, with a powdered coal tar pitch, means for caramelizing (hardening) the briquettes for ease of handling, subjecting the caramelized briquettes to a first temperature source until said briquettes are partially reduced to conductivity, heir dimensions are substantially reduced and subsequently reducing said briquettes by subject them to a frequency electric induction induced heat source.

3,740,043
APPARATUS FOR VAPORIZING MOLTEN METAL
William A. Reed, West Richfield, and Frank J. Cole, Parma, both of Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio
Division of Ser. No. 40,500, May 26, 1970, Pat. No. 3,640,762.
This application Aug. 20, 1971, Ser. No. 173,683
Int. Cl. C21c *7/10*
U.S. Cl. 266—34 R **12 Claims**



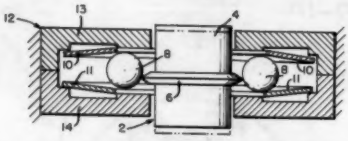
Apparatus and method for vaporizing molten metal without entrainment of liquid droplets includes charging a pool of molten metal into a chamber in which there is a block having a plurality of passages. A finger is disposed in each passage of the block, a space being left between the inner surface of the passage and the outer surface of the finger to create a shell of fluid metal within the passage. Heating the shells of fluid metal generates metal vapor. The metal vapor is passed through a tortuous path and then directed by a nozzle toward a moving substrate to be coated.

3,740,044
METHOD AND APPARATUS FOR THE PRODUCTION OF IRON OR STEEL
Andray Uemlianin, Redcar, England, assignor to The British Iron and Steel Research Association, London, England
Filed Jan. 19, 1972, Ser. No. 218,890
Int. Cl. C21c *5/28*
U.S. Cl. 266—36 H **10 Claims**



An iron or steelmaking process in which particles of coke or iron ore are fed into a horizontally-disposed furnace which rotates at high speed. The particles enter a discharge tube by means of a slot in the tube wall and are ejected from the discharge end of the tube into the furnace by pulses of compressed air, thus spreading the particles over the length of the furnace.

3,740,045
PRECISION DISC SPRINGS
Julius C. Westmoreland, 6607 Avenida de Las Pescas, La Jolla, Calif.
Filed July 19, 1971, Ser. No. 163,576
Int. Cl. F16f *1/20*
U.S. Cl. 267—162 **9 Claims**

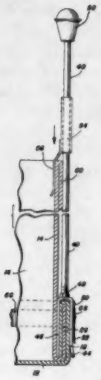


A disc spring arrangement utilizing the axial resilience of two parallel annular disc spring elements held apart a fixed (but adjustable) distance at two adjacent circular disc circumferences, the other two circular edges being free to move away from each other under the influence of blunt wedge means acting radially on said free edges under the influence of a cam actuator, and reacting in turn on the wedges when the cam actuator is moved back to its initial position. The new disc spring is adapted for use in a wide range of applications requiring large loading capacity, and can be stacked to give a greater throw, and can also readily be made self-locking in either extreme position of the cam actuator to operate as a snap-lock device.

3,740,046
CARTON STRAPPING-ASSIST DEVICE
George Bellinder, Des Plaines, Ill., assignor to Harold A. Roth, Lake Villa, Ill., a part interest
Filed Nov. 17, 1971, Ser. No. 199,622
Int. Cl. B65b *67/00, 13/02*
U.S. Cl. 269—3 **8 Claims**

A device for aiding persons in strapping cartons having interlocking bottoms and sides is provided, and comprises an

elongated rod having clamping means connected to an end thereof, which clamping means are utilized to hold together

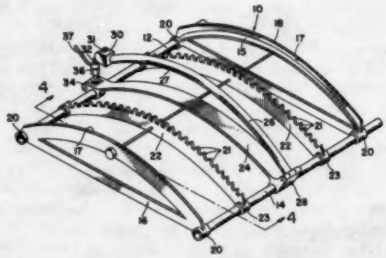


bendable flaps which extend outwardly from the bottom of the carton and which envelop bendable flanges that extend outwardly from the sides of the carton.

3,740,047
METHOD AND APPARATUS FOR BUILDING CARD SCREENS

Robert B. Jenkins, Sr., and Robert B. Jenkins, Jr., both of Gastonia, N.C., assignors to Jenkins Metals Shops, Inc., Gastonia, N.C.

Division of Ser. No. 752,091, July 11, 1968, Pat. No. 3,568,289. This application Dec. 28, 1970, Ser. No. 102,073
Int. Cl. B25b *1/20*
U.S. Cl. 269—40 **4 Claims**



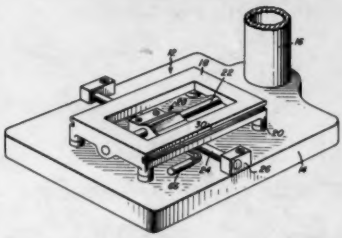
This invention relates to the manufacture of card screens, and more particularly to apparatus for fabricating sub-assemblies which are united in an assembled screen.

3,740,048
INSTANT TWO-WAY LOCK FOR WORK HOLDERS

Carl O. Lassy, 96 Bohemia St., Plainville, Conn., and William A. Lassy, 73 Grove Avenue, Forestville, Conn.

Filed May 13, 1971, Ser. No. 142,890
Int. Cl. B23q *3/02*
U.S. Cl. 269—59 **13 Claims**

A locking assembly for instantly immobilizing the motion of a slide fixture at fixed selected positions to facilitate repetitive drilling, drilling through relatively thin material with a large drill in which procedure it is imperative to lock the fixture securely and instantly and in any other precedure or technique where it is desirable to lock a slide fixture capable of two-way

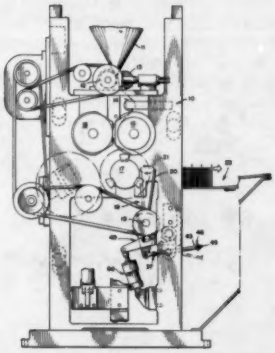


motion instantly and securely in position so that the work carried by the fixture will be immobilized quickly and securely by actuating a single locking handle or actuator.

3,740,049
COUNTER SYSTEM FOR ORBITAL PACKER

David L. Fischer, Green Bay, Wis., assignor to Paper Converting Machine Company, Inc., Green Bay, Wis.

Filed Aug. 17, 1970, Ser. No. 64,332
Int. Cl. B411 *43/04*
U.S. Cl. 270—41 **5 Claims**



During normal operation, the orbiting fingers of a machine for packing individual web segments takes folded web segments, such as napkins, from a rotating vacuum cylinder and removes them from the surface of the cylinder and stacks them horizontally. A mechanism counting the napkins generates an electronic signal at a predetermined count, and the signal energizes a solenoid which actuates an air cylinder to rotate the packer fingers without changing their orbit to a position in which the fingers engage the web segment at an earlier part of the orbit when the web segment is slightly higher on the cylinder. The fingers then take a single napkin off of the vacuum cylinder at the higher position and transfer it to the stack in that position so that this napkin extends above the upper surface of the stack and becomes a count napkin.

3,740,050

APPARATUS FOR ASSEMBLING A STACK OF SHEETS

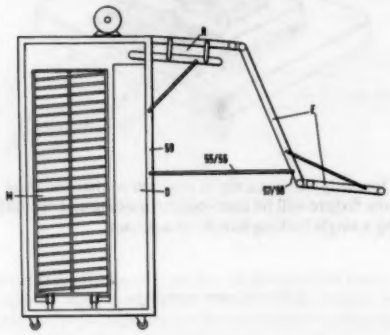
Josef Egied Jacobs, Vivegnis, Belgium, assignor to Ordibel S.P.R.L., Herstal, Belgium

Filed Aug. 6, 1970, Ser. No. 61,628

Claims priority, application Luxembourg, Aug. 8, 1969, 59,256

Int. Cl. B65h *39/02*

U.S. Cl. 270—58 22 Claims



Apparatus for conveying single sheets received from a printing press or the like, conveying them by means of relatively narrow endless belts to an inversion section where the sheets are received in a supplemental conveyor in one direction and serve to activate belt conveyors removing the individual sheets in the direction opposite that which they were received; the individual sheets, while inverted for proper pagination, being received in a distribution conveyor successively distributing the individual sheets to receiving sections controlled by deflecting gates and in which the deflecting gates of the respective receiving sections are automatically oriented to a non-deflecting position by control means operatively associated with the receiving section and activated by a sheet received in the section; and distributing conveyors functioning to sort or collate individual sheets in both descending and ascending relation relative to vertically spaced receiving sections controlled by the sheet-operated gates.

3,740,051

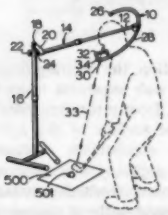
GOLFER'S PRACTICE HEAD POSITION GUIDE

Chaillos Cross, 1501 Vista Larga Court N.E., Albuquerque, N. Mex.

Filed Apr. 12, 1971, Ser. No. 133,106

Int. Cl. A63b *69/36*

U.S. Cl. 273—183 E 7 Claims



An apparatus for training a golfer, without physical restraint, to adopt and maintain proper head position during the execution of a golf swing. A guide ring, typically consisting of a smoothly curved loop of lightweight tubular plastic, is supported in a downward direction from one end of an elongated suspension arm. The guide ring is designed to surround and extend above and below a golfer's head in close proximity without touching it. Pivotal connections between the guide ring and suspension arm are provided for adjusting the height of the guide ring above the ground and for rotating it into any desired inclination with respect to the golfer's head. At the bottom of the guide ring there is attached a small sighting frame having an internal aperture about the size of a pair of eyeglasses. In preparing to address a golf ball the golfer projects his head through the plane of the guide ring so that the sighting frame is close to his eyes as he focuses on the golf ball through the aperture. If the golfer moves his head in any direction during his stroke, he will be conscious of a change in its position and may take appropriate corrective action. If such movement is excessive, his head will make physical contact with the guide ring. A portion of the guide ring may be removed or distorted on one side to permit unrestricted movement of the golfer's head during the follow-through phase of his swing.

3,740,052

GOLF PRACTICE DEVICE

Theodore E. Arkin, 3200 N. Lake Shore Drive, Chicago, Ill.

Filed Mar. 9, 1972, Ser. No. 233,273

Int. Cl. A63b *69/36*

U.S. Cl. 273—189 R 2 Claims

A golf practice device comprising an elastic and resilient member adapted to be attached and positioned with respect to the forearm of the player so that the arm is held straight against bending with the head properly positioned relative to the shoulder and to improve the pivoting of the body. The golf practice device includes a length of flexible, elastic and resilient cord including a clamp at each end thereof. The clamps are adapted to engage the cord at any position along the length thereof, so that a loop of any size may be formed at each end of the cord. The length of the cord is such that it may extend from a first loop encircling generally the area of a golfer's shoulder join, across the golfer's back, around the golfer's forearm and to a second loop encircling the joint between the thumb and adjacent finger of the hand on the golfer's other arm. The shoulder engaging end of the cord also is adapted to be fastened to the golfer's belt. In order to also maintain the golfer's head in proper position, the shoulder engaging end of the cord is adapted to encircle the golfer's head, pass downwardly on a side of the golfer's face, under the golfer's chin, over and under the golfer's shoulder and then to the golfer's forearm and thumb.

3,740,053

GOLF PRACTICE DEVICE

William H. Eiger, 36861 Lake Shore Boulevard, Eastlake, Ohio

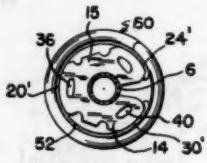
Filed Dec. 2, 1971, Ser. No. 204,120

Int. Cl. A63b *69/36*

U.S. Cl. 273—194 B 11 Claims

A golf practice and/or trainer device detachably locked to the shaft of a golf club to selectively weight the club including

a gripping member of elastomeric material having a bifurcated construction for snap-action insertion around the club shaft and a clamping member slidably disposed around the gripping member and dimensioned for resiliently deforming the gripping member so that the gripping and clamping members



are locked, as a unit, on the club shaft. In one form, the gripping member has a plurality of passageways disposed therein for increasing the deformability thereof, and a resilient shield is disposed between the gripping and clamping members to provide a bearing surface to facilitate assembly and disassembly of said parts.

3,740,054

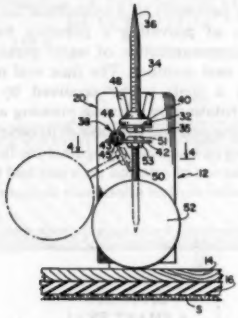
GOLF PRACTICE DEVICE

Theodore E. Arkin, 3200 N. Lake Shore Drive, Chicago, Ill.

Filed Mar. 9, 1972, Ser. No. 233,274

Int. Cl. A63b *69/36*

U.S. Cl. 273—197 A **9 Claims**



A golf ball practice device includes a horizontal arm having inner and outer ends. The inner end of the arm is mounted in a support which permits the arm to be elevated and lowered to adapt same for use with golf club irons and woods, respectively. A pair of plates are hinged to each other and secured to the outer end of the arm. A coil spring is provided to bias the plates toward each other and maintain the plates substantially parallel. The upper plate is secured to the outer end of the arm by a stud having a pointed end and extending in a direction away from the lower plate. A golf ball is secured to the lower plate. The pointed stud is adapted to be inserted into the ground when the arm is in a lowered position and the device is used with golf club woods.

3,740,055

AUDIO REPRODUCING APPARATUS FOR RAMDOM ACESS PLAYBACK SYSTEMS

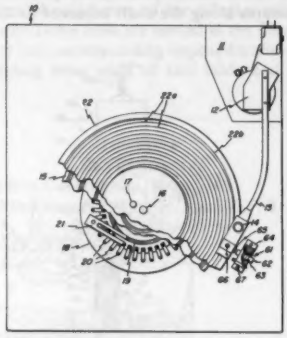
David J. BenDaniel, 2508 McGovern Dr., Schenectady, N.Y.; John O. Fielding, 27 Midline Rd., Ballston Lake, N.Y., and Henry Hurwitz, Jr., 827 Jamaica Rd., Schenectady, N.Y.

Division of Ser. No. 827,792, May 26, 1969, Pat. No. 3,672,687. This application Apr. 8, 1971, Ser. No. 132,603

Int. Cl. G11b *21/08*

U.S. Cl. 274—9 RA **2 Claims**

Audio playback apparatus is disclosed including a tone arm which is positioned electromagnetically to facilitate control thereof in accordance with the position of a turntable relative to the tone arm. The apparatus is particularly suited for random access retrieval of audio information from a record including a plurality of nested spirals each corresponding to items of information on a display or selection chart. An array



of switches corresponding to individual items on the display and a position selector switch assembly operated by the position of the turntable relative to the tone arm cooperate to position the stylus of the tone arm in a spiral groove corresponding to the selected portion of the display.

3,740,056

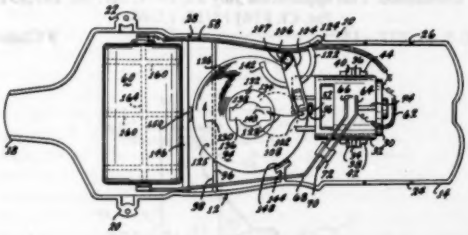
PHONOGRAPH TOY HAVING SWINGABLE MOTOR AND RECORD-SUPPORTING OUTPUT SHAFT

Fleet E. Nuttall; Ralph R. Laing, both of Hermosa Beach; James E. Marshall, Westminster; Tony Rhodes, Torrance; John E. Sargeant, Palos Verdes, and Larry D. Workman, Fountain Valley, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Dec. 17, 1971, Ser. No. 209,100

Int. Cl. G11b *25/04*

U.S. Cl. 274—9 B **10 Claims**



Record-driving motor is swingably mounted and the motor output shaft is spring-loaded against a record thereby trapping a phonograph needle between record groove and fixed speaker cone. Needle pressure is relieved at end of play so that spring-loaded output shaft siwngs sufficiently to move motor into a de-energized position. A reset button tips motor sufficiently to lower one side of record away from neelde permitting it to return to the outer edge of record.

3,740,057

SHAFT SEAL

Edward F. Doyle, Dedham, and Thomas LeFeuvre, Woburn, both of Mass., assignors to Thermo Electron Corporation, Waltham, Mass.

Filed May 28, 1971, Ser. No. 148,027

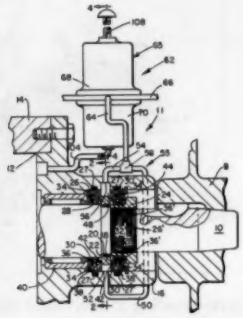
Int. Cl. F16j *15/00*

U.S. Cl. 277—3 **22 Claims**

A rotary shaft seal is characterized by a buffer compartment filled with fluid maintained at a pressure which equals or ex-

ceeds the pressures along the shaft with which the seal is associated. The relatively high buffer pressure within the seal is effective to prevent passage of material along the shaft from one side of the seal to the other.

In one preferred embodiment, the device for applying pressure to the buffer fluid within the compartment is responsive to the pressures along the shaft adjacent to opposite sides of



the seal. The intensity of pressure applied to fluid within the buffer compartment is a function of the pressures along the shaft. This preferred embodiment is an effective driveshaft seal for the expander in a Rankine cycle engine, wherein the pressure applying device responds to both the pressure within the expander and the pressure outside the expander and applies to fluid in the buffer compartment a pressure higher than either of them.

3,740,058

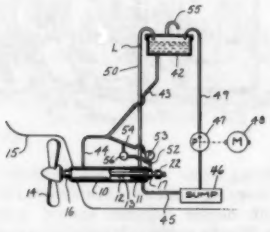
FORWARD SEALING ASSEMBLY FOR STERN TUBES

Willis W. Gardner, Waukesha, and Richard L. Rafferty, Menomonee Falls, both of Wis., assignors to Waukesha Bearings Corporation, Waukesha, Wis.

Continuation-in-part of Ser. No. 10,915, Feb. 12, 1970, abandoned. This application July 26, 1971, Ser. No. 165,891

Int. Cl. F16j *15/16, 15/40*

U.S. Cl. 277—15 **9 Claims**



An annular casing which surrounds the tail shaft of a ship at the forward end of the stern tube has a first annular pocket within which a flexible annular lip seal is supported for sealing around the tail shaft liner. Aft of the seal, in another annular pocket which communicates with the oil chamber in the stern tube, is a floating ring having restricted clearance around the liner. A pump draws oil from the first pocket, causing oil to be drawn from the stern tube oil chamber through the restricted clearance space and the said first annular pocket, this oil being pumped back into the stern tube oil chamber. A pressure regulating valve is connected in parallel with the pump to maintain a substantially constant circulating pressure. A desired reduced pressure is thus maintained adjacent the seal to reduce the pressure difference across the seal lip.

3,740,059

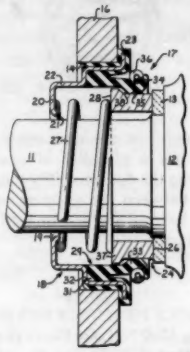
WATER PUMP SEAL

Marion J. Witzenburg, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 15, 1972, Ser. No. 234,873

Int. Cl. F16j *15/32*

U.S. Cl. 277—38 **3 Claims**



A water pump seal including a lip-type sealing member maintained in a sealing position to a containing case and engaging the outer periphery of a cylindrical face seal member for the purpose of providing a pressure balance seal by eliminating the communication of water pressure to the rear face of the face seal member. The face seal member is held concentric with a shaft to be received by the seal and restrained from rotation by a spring pressing against the face seal member at one end and the case at its other end as well as by a resilient lip-type seal bearing against the face seal circumference. Such manner of rotation restraint and the use of a lip-type sealing member further contribute to increased seal life.

3,740,060

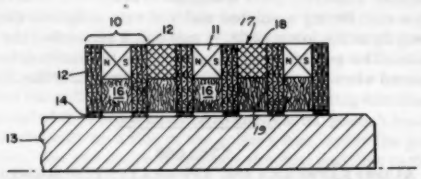
A SHAFT SEAL

Gabor Miskolczy, Carlisle, and Robert Kaiser, Cambridge, both of Mass., assignors to Avco Corporation, Cincinnati, Ohio

Filed Nov. 3, 1971, Ser. No. 195,334

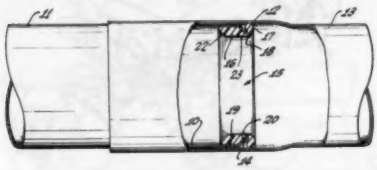
Int. Cl. F16j *9/00;* **E21b** *33/00*

U.S. Cl. 277—80 **8 Claims**



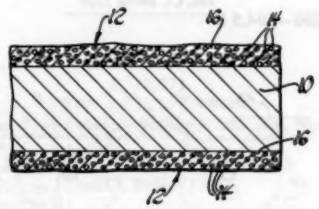
The invention relates to a shaft seal using a magnetic fluid to seal the clearance gap between a shaft and the housing. The magnetic fluid is held in place by a magnetic field. A modular structure is described which acts as a fluid reservoir, and a magnetic pole piece. The modular structure may also have inherent staging.

3,740,061
SEALING ARRANGEMENT FOR IRRIGATION PIPE LINE SECTIONS
Arthur E. Jensen, 11372 S.W. Skyline Drive, Santa Ana, Calif.
Filed Jan. 15, 1971, Ser. No. 106,794
Int. Cl. F16j 9/04; F16l 21/02
U.S. Cl. 277—178 **5 Claims**



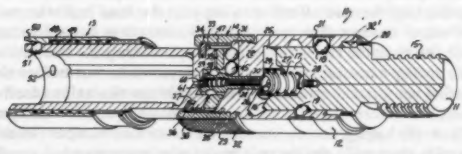
A seal ring of an elastomeric material is formed with a generally J-shaped radial cross-section adapted to be matingly keyed to a bullnosed end of a spigot end of one pipe section to leave a sealing lip or ring portion of the J-ring seal protruding for sealing engagement with the interior surface of a bell end portion of another section of irrigation pipe.

3,740,062
ADHESIVE IN CAPSULE COATED GASKET
Charles I. Robins, Southfield, Mich., assignor to McCord Corporation, Detroit, Mich.
Filed Aug. 13, 1971, Ser. No. 171,660
Int. Cl. F16j 15/12
U.S. Cl. 277—235 B **11 Claims**



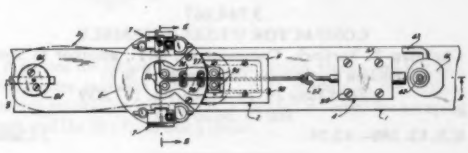
A gasket with a sealant coating and the method of coating the gasket. The gasket is coated with a coating including a dispersion of capsules containing a sealant in a vehicle-binder including a thixotropic agent. The coating is applied by a roller having an elastomeric surface with longitudinal and circumferential grooves therein.

3,740,063
FLOATING TOOL HOLDER
Theodore M. Smith, 14750 Puritan Avenue, Detroit, Mich.
Filed Oct. 15, 1971, Ser. No. 189,654
Int. Cl. B23c 31/04; B23b 49/00
U.S. Cl. 279—16 **8 Claims**



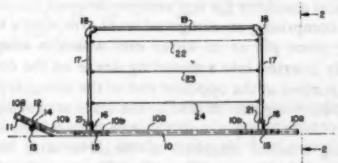
In a floating tool holder having a shank, a body driven thereby and an adapter assembly removably secured to and driven by said body, the improvement which includes a float disc interposed between said body and adapter assembly. A series of axial apertures extend through the disc and transverse slots are formed in opposing end faces thereof. End thrust separator balls are nested in the axial apertures for engagement with said body and adapter assembly to permit copensating lateral translation of the adapter assembly relative to said body. Drive balls are nested in the float transverse slots to project into corresponding opposed transverse slots in the corresponding inner ends of said body and adapter assembly.

3,740,064
SKI BINDING
Stuart Weg, 100-6 Carver Loop, Bronx, N.Y.
Filed May 6, 1971, Ser. No. 140,730
Int. Cl. A63c 9/08
U.S. Cl. 280—11.35 T **7 Claims**



A safety ski binding where opposing forces of at least two springs provide not only for release of the ski boot upon application of excess force, but ejection of the boot from the binding.

3,740,065
TOW FOR SNOWMOBILES
Marvin H. Greene, 38 Clove Road, Monroe, N.Y.
Filed Oct. 27, 1971, Ser. No. 193,132
Int. Cl. B62b 13/00
U.S. Cl. 280—19 **4 Claims**

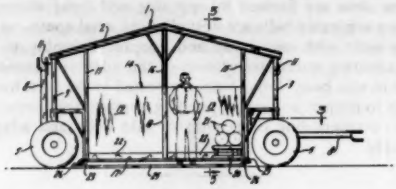


A tow is provided capable of supporting from one to, roughly, five persons, including small children, to be drawn by a self-propelled small vehicle, of which the snowmobile is the best example, up slopes as well as on a level surface. The tow is particularly applicable to carry skiers up slopes; it can be readily dismantled for storage or whatever other purpose.

3,740,066
PALLET WAGON FOR SOD PICK-UP MACHINE
Robert G. Gieringer; Robert H. Gieringer, and William A. Gieringer, all of Milwaukee, Wis., assignors to H. L. Diehl Co., Inc., South Windham, Conn.
Filed June 1, 1971, Ser. No. 148,331
Int. Cl. A01d 75/22
U.S. Cl. 280—32.5 **4 Claims**

A pallet wagon is adapted to be pulled through a field, either alone or in tandem, along side a sod pick-up and rolling machine and is adapted to receive the sod rolls. The wagon is provided with pairs of fore and aft wheels connected to suitable tongues, with both wheel pairs being selectively steerable.

When a tongue is raised, its respective wheel pair locks into non-steerable position. A retractable and removable platform



and mount therefore are provided along the open side of the wagon so that a person handling the sod rolls can ride thereon without having to walk alongside the moving wagon.

3,740,067

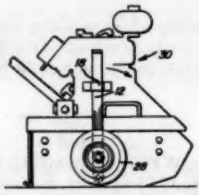
COMPACTOR WHEEL ASSEMBLY

Christian T. Tertinek, Canandaigua, N.Y., assignor to Stone Construction Equipment, Inc., Honeoyl, N.Y.

Filed June 29, 1971, Ser. No. 157,839

Int. Cl. B62b 1/04

U.S. Cl. 280—43.24 **3 Claims**



A wheel assembly for soil compactors and the like, said assembly comprising an elongated lever arm with a laterally extending pivot pin at its lower end which is adapted to be rotatably inserted into a mounting sleeve on the compactor, a handle portion at the opposite end of the elongated lever arm, a wheel-carrying axle affixed to the lever arm at a point intermediate the pivot pin and the handle portion, and a rigid mounting bracket attached to the lever arm between the wheel axle and the handle portion. The mounting bracket extends in a lateral direction from the lever arm and includes a pair of mounting tabs extending in opposite directions and adapted to fit under a mounting flange or lip on the compactor housing. The relative positions of the pivot pin and wheel axle provide a mechanical advantage for easy raising of the compactor by manipulation of the lever arm.

3,740,068

STEERING COLUMN SUPPORT ASSEMBLY

Jiro Arata, Aichi-ken, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan

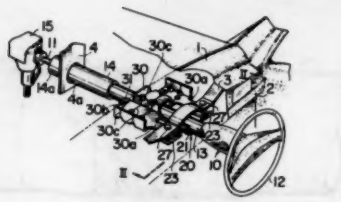
Filed Feb. 3, 1971, Ser. No. 112,302

Claims priority, application Japan, Feb. 7, 1970, 45/10382

Int. Cl. B62d 1/18

U.S. Cl. 280—87 A **4 Claims**

A steering column support assembly comprises holding pieces, steel balls, and a bracket. The holding pieces are secured to a beam member of a vehicle body by means of bolts and nuts. The steel balls placed in the grooves formed by the holding pieces are pressed by the holding pieces, thus holding the bracket wing portions which are substantially parallel to the shaft of the steering column. The bracket fixes the upper jacket of the steering column and is provided with a flange which is brought into contact with the front end of a holding piece when the steering column is moved backward. In order to absorb the axial impact energy applied to the steering column in the event of a crash, the steering column, supported



in an axially movable manner, is supported by the stable engaging force developed by the steel balls. Upon the occurrence of a crash, the steering column is moved forward together with the bracket, while rolling the steel balls. The flange prevents the steering column from coming out in the backward direction.

3,740,069

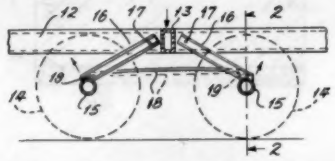
VEHICLE TANDEM AXLE SUSPENSION SYSTEM

Louis P. Fister, St. Louis, Mo.; Lawrence H. Fitch, Cahokia, Ill.; George K. Jeney, St. Louis, and William A. Scheublein, Ballwin, both of Mo., assignors to Moog Industries, Inc., St. Louis, Mo.

Filed Mar. 29, 1971, Ser. No. 128,880

Int. Cl. B60g 5/04

U.S. Cl. 280—104.5 R **6 Claims**



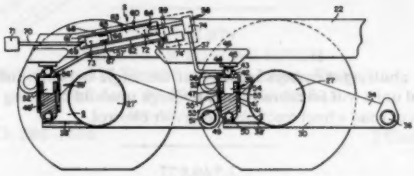
A tandem axle suspension system for a vehicle load bearing frame in which the wheels and axles are caused to move relatively away from each other or toward each other an is so moving a suspension spring device connecting the wheel and axle assemblies is caused to resist such movement in tension or compression. The axles are linked to the load bearing frame in a manner to allow the axles to swing or pivot relative to the frame thereby converting the vertical motion imposed on the frame into torsional reaction as well as horizontal motion of the axles. The torsional reaction in the axles assists the suspension spring and the torque in the axle and the suspension spring together are effective to support the load and take care of wheel motion. The spring in this context is caused to undergo a variable rate of resistance approaching the strength of the spring material in tension or compression, but before the spring material is stressed to its maximum the axles reach a position where there is no further possible relative motion. Thus, the spring device becomes a strike out bumper. In this system the spring device reaches its maximum stressed condition before the links connected to the axles swing to a horizontal position thereby preventing the frame from striking the axles.

3,740,070

VEHICLE SUSPENSION SYSTEM

James M. Butler, Peoria, and Gerald P. Simmons, Washington, both of Ill., assignors to Westinghouse Air Brake Company, Pittsburgh, Pa.

Filed July 19, 1971, Ser. No. 163,575
Int. Cl. B60p 1/60
U.S. Cl. 280—104.5 R 5 Claims



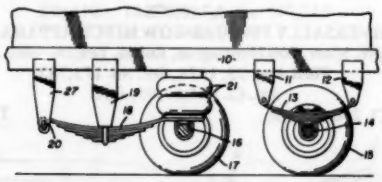
A suspension system for supporting one side of a vehicle chassis having a pair of tandem axles, including hydraulic suspension cylinders connecting each axle with the chassis, a flow control valve and fluid lines connecting the flow control valve with the hydraulic suspension cylinders for equalizing pressure therebetween during the movement of the vehicle over relatively rough terrain; there being a fluid pressure accumulator connected with the flow control valve for absorbing the shock developed upon the vehicle traveling over a bump or a depression in the field.

3,740,071

VEHICLE SUSPENSION

Michael Bilas, 2730 Columbiana-New Castle Rd., New Springfield, Ohio

Filed Dec. 15, 1971, Ser. No. 208,073
Int. Cl. B60g 11/46
U.S. Cl. 280—124 R 3 Claims



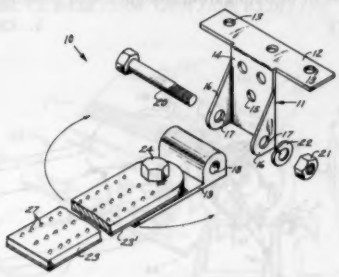
A vehicle suspension suitable for trucks and trailers positions a wheel and axle assembly on the vehicle on the trailing ends of a pair of semi-elliptic springs arranged to urge the wheel and axle assembly toward the vehicle so as to lift the same from a road surface. Air bags are positioned between the wheel and axle assembly and the vehicle and means for inflating and deflating the air bags permit the wheel and axle assembly to be lifted from the road surface or engaged therewith in a weight carrying relation to the vehicle. The semi-elliptic springs are positioned by fulcrum members engaging their center sections and their forward ends are pivoted to the vehicle or another wheel and axle assembly.

3,740,072

FOOT CLEANER DEVICE FOR VEHICLES

Louis A. Veith, Route No. 1, Pierz, Minn.

Filed June 10, 1971, Ser. No. 151,866
Int. Cl. B60r 3/04
U.S. Cl. 280—164 A 3 Claims



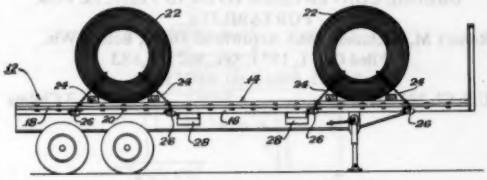
A device for attachment to automobiles, trucks and the like. This device includes a bracket which mounts to the vehicle and has pivotally secured to it, a nippled member for scraping slush and the like from one's shoes.

3,740,073

TRAILER WINCH

Phillip D. Schwiebert, 599 Greenleaf, Glencoe, Ill.

Filed July 29, 1971, Ser. No. 167,230
Int. Cl. B60p 7/08
U.S. Cl. 280—179 A 8 Claims



The improved trailer winch disclosed herein is adapted to be mounted on the channel side rail of a trailer and to be utilized to assist in securing loads to the deck of a trailer. The means for mounting the winch on the channel side rail of the trailer allows the winch to be slidably moved with respect to and along the channel side rail of the trailer so that the winch can be selectively positioned with respect to the load to be secured. The winch mounting means also prevents removal of the winch from the channel side rail of the trailer. The winch is constructed so that it does not project beyond the maximum permissible eight foot width clearance of the trailer and so that it may be operated by a person standing on the ground next to the trailer.

3,740,074

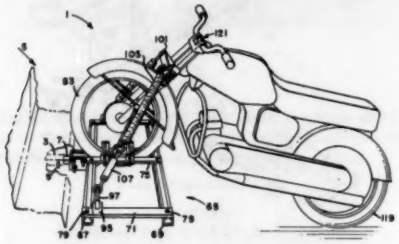
MOTORCYCLE TOWING DEVICE

Frederick J. Coil, 109 Latham Trailer Courts, Latham, N.Y.

Filed July 12, 1971, Ser. No. 161,747
Int. Cl. B62d 53/04
U.S. Cl. 280—402 9 Claims

Discloses a device for use with a towing vehicle to tow a two-wheeled vehicle having a pivotal front wheel and a rear wheel. The device includes a hitch-bar assembly, detachably attached to the rear of the towing vehicle, carrying a frame assembly which carries a mounting bracket assembly. The pivotal front wheel is raised off the ground and rests on elon-

gated channels of the mounting bracket assembly which has middle spacer plates providing lateral support for the front wheel. Spring-tension adjustable main springs mounted laterally of the front wheel on the mounting bracket assembly and on the spring forks of the motorcycle maintain the motorcycle upright in straight ahead movement of the towing vehicle and allow the motorcycle to track the towing vehicle taking a curve or deviating from straight ahead movement by tilting or canting movement of the motorcycle corresponding to the tilting or canting movement of the towing vehicle taking a curve or deviating from straight ahead movement. Spring-tension adjustable auxiliary springs similarly mounted function as a safety factor for the main springs in case of their malfunction or breakage. The frame assembly is carried on the hitch-bar assembly to be rotatable for up and down return movement of the frame assembly and thereby the mounting bracket assembly when the rear wheel of the motorcycle hits a bump.



3,740,075

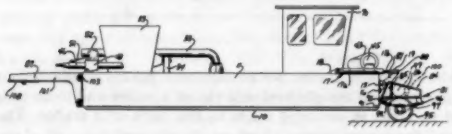
DREDGE CONVERTIBLE TO LAND VEHICLE FOR PORTABILITY

Robert M. Soehnlen, 1865 Arrowhead Drive, Beloit, Wis.

Filed Oct. 1, 1971, Ser. No. 185,683

Int. Cl. B60f *3/00*; **E02f** *3/88*

U.S. Cl. 280—415 B **3 Claims**



A dredge apparatus having a wheel carriage assembly swingably mounted on one end of the dredge hull, hydraulic actuators connected to the dredge hull and wheel carriage assembly to move the wheel carriage assembly out of and into an operative position supporting the end of the hull on the ground engaging wheels of the wheel carriage assembly, and a truck hitch unit is attached to the other end of the hull for connecting and supporting the dredge to a truck for towing the dredge overland.

3,740,076

ANTI-JACKNIFING TRAILER COUPLING

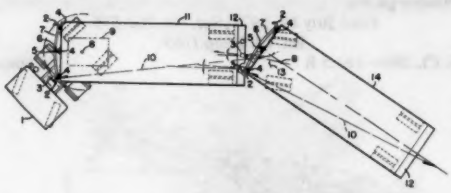
James E. Cupp, 4454 Central Avenue, San Diego, Calif.

Continuation-in-part of Ser. No. 43,429, June 4, 1970, abandoned. This application Jan. 7, 1972, Ser. No. 215,998

Int. Cl. B62d *53/10*

U.S. Cl. 280—432 **4 Claims**

Means for permitting a trailer to move forward a short distance, toward the tractor under conditions that might otherwise result in a dangerous jacknife. As the distance between the trailer and the tractor to which it is attached is closed, turn restricting members on the two units are brought into contact with each other. Jacknifing is avoided because the abutting members insure that the angle between the coupled units will remain sufficiently large to avoid buckling and a loss of road wheel traction and driver control.



3,740,077

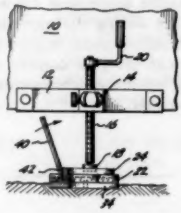
SHIFTABLE FOOTING FOR TRAILERS

Russell T. Williams, 8009 S. Lakeridge Road, Seattle, Wash.

Filed May 8, 1972, Ser. No. 251,014

Int. Cl. B60d *1/00*

U.S. Cl. 280—475 **7 Claims**



A two-part footing is disclosed to provide a broad base to receive and support the weight-bearing, levelling leg associated with the two-bar of a trailer. One part of said footing rests upon a ground-engaging base plate and means is provided permitting easy lateral shifting of the supported part and a load borne by it, relative the base plate. A modified form includes a pivotally associated sub-base plate permitting the footing to be revolved about an axis established by the sub-base plate.

3,740,078

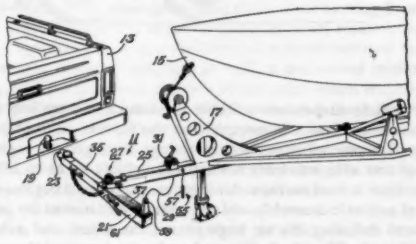
UNIVERSALLY PIVOTAL TOW HITCH APPARATUS

Julius W. Murr, 200 Huntington, Euless, Tex.

Filed Aug. 23, 1971, Ser. No. 173,782

Int. Cl. B60d *1/06*, *1/10*

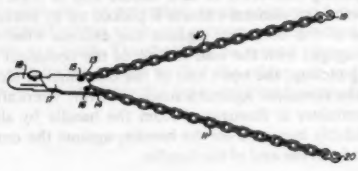
U.S. Cl. 280—478 R **7 Claims**



Tow hitch apparatus for connecting a trailing vehicle onto a towing vehicle having a tow hitch thereon characterized by a tongue, a coupling head connected to a forward end of the

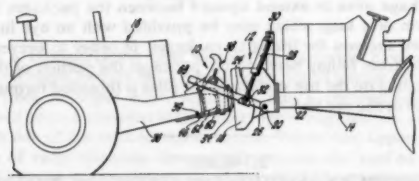
tongue, a draft member connected to the trailing vehicle, and a universally pivotal connection means for connecting the tongue with the draft member whereby the coupling head can be connected with the tow hitch regardless of misalignment, either vertically or laterally. In specific embodiments, a winch and cable are provided for effecting alignment after the coupling head is connected; locking means are provided for locking the tongue and draft member into alignment; the tongue comprises telescopically mounted members; and locking and limit means are provided for control of the draft length of the telescopically mounted members.

3,740,079
VEHICULAR TOWING HITCH
Gale N. Skinner, 272 West First South, Logan, Utah
Filed Aug. 20, 1970, Ser. No. 65,521
Int. Cl. B60d *1/04*
U.S. Cl. 280—480 **2 Claims**



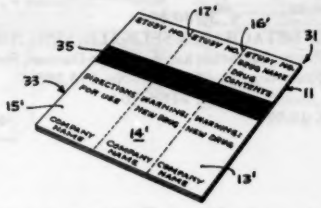
A vehicular towing device for attachment to a conventional automobile trailer hitch for temporary towing of another vehicle has been invented. The towing device comprises hitch means for fastening said towing device to a conventional automobile trailer hitch attached to the towing vehicle and a pair of heavy duty towing chains, cables or heavy duty cords attached to the hitch means. The towing chains, cables or cords are attached at substantially a common point to the hitch means. Attached at the free ends of such cables or the like are hook means for securing said cables or the like to the frame or axle members of the towed vehicle.

3,740,080
CUSHIONED HOOK FOR A PUSH-PULL TYPE VEHICLE COUPLING
Bernard A. Kuhl, Cleveland, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 10, 1971, Ser. No. 197,316
Int. Cl. B60d *1/04*
U.S. Cl. 280—481 **6 Claims**



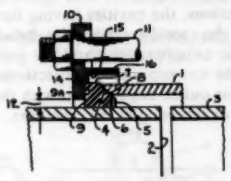
A cushioned hook adapted to be mounted to the rear of a vehicle for providing a pulling connection with a trailing vehicle. The cushioned hook includes a lever member supported for pivotal movement and having an upper portion formed as a hook and a lower portion adapted to engage a resilient bumper when the hook is connected to the trailing vehicle.

3,740,081
LABEL USEFUL FOR BLIND CLINICAL STUDIES OF A MEDICAMENT AND METHOD OF THE MANUFACTURE THEREOF
Ronald Lee Whipperman, Gurnee, Ill., assignor to Abbott Laboratories, North Chicago, Ill.
Filed Mar. 6, 1972, Ser. No. 231,823
Int. Cl. B42d *15/00*; G09f *3/00*; B32b *13/00*
U.S. Cl. 283—6 **12 Claims**



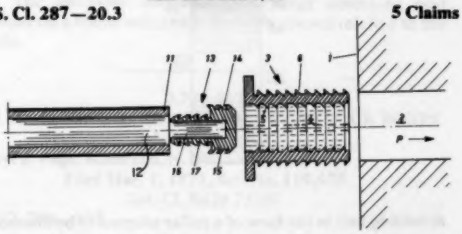
A label useful for blind clinical studies of the effects of a particular medicament comprising a water-soluble paper having only revealable information printed thereon, integrally bonded to and coextensive with a water-insoluble paper having both revealable and secret information printed thereon. Only the revealable information is visible on the label until the label is washed in water.

3,740,082
PIPE COUPLING
Edward H. Schustack, 2244 East 37th St., Los Angeles, Calif.
Filed June 15, 1972, Ser. No. 263,263
Int. Cl. F16l *21/04*
U.S. Cl. 285—342 **3 Claims**



A sleeve type coupling for plain end pipe in which an axially extending surface coaxial with the follower cooperates with flexible tabs projecting outwardly from the gasket to center the follower on the outer surface of the pipe end and thereby minimize leakage.

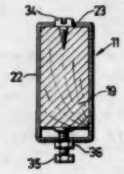
3,740,083
MOUNTING SUPPORT FOR CLIMBING ELEMENTS
Heinrich Zenhausern, Blumensdorferstrasse 134, CH 8902 Urdorf, Switzerland,
Filed Nov. 30, 1971, Ser. No. 203,254
Int. Cl. F16b *1/00*
U.S. Cl. 287—20.3 **5 Claims**



A mounting support for climbing elements for force fitting into a correspondingly shaped but smaller bore in a wall com-

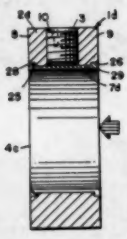
prises a hard, strong, yielding plastic sleeve having cylindrical or square inner and outer longitudinal surfaces with serrations in the form of ring-shaped fins which are interrupted to form fish scale sectors with gaps between them. The serrations on the inner surface have oblique slopes running in the direction of insertion of the sleeve into the bore in the wall, while the serrations on the outer surface have oblique slopes running in the other direction. The shanks of the climbing elements are inserted into the sleeves.

3,740,084
READILY DETACHABLE SELF-ALIGNING JOINT
Klas Olof Tellberg, Rattarbacken 6, Saltsjo-Duvnas, Sweden
Filed Aug. 23, 1971, Ser. No. 173,899
Int. Cl. F16b 7/04
U.S. Cl. 287—20.927 **6 Claims**



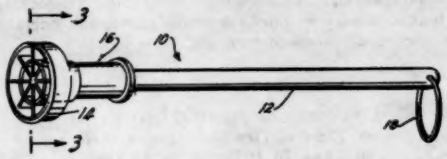
For releasably joining of crossbars and posts in stands, for instance for forming stages to cover boats which are laid up on land, a joint element comprises a body forming a corner joint in the stand and showing cavities with different directions which are intended to receive the crossbars and which have recesses running at tight angle to the cavity directions so as to receive said projections, the cavities having further a greater cross-section than the crossbars, whereby, by actuating of set screws between the crossbars etc., and the joint elements in the direction of the corresponding projections, said projections are put into or out of engagement with the recesses for individual keeping or releasing of the crossbars.

3,740,085
HOLDING UNITS
Michael C. Evans, 950 Adelaide Drive, Northbrook, Ill.
Filed Aug. 9, 1971, Ser. No. 169,967
Int. Cl. F16d 1/06
U.S. Cl. 287—52.08 **7 Claims**



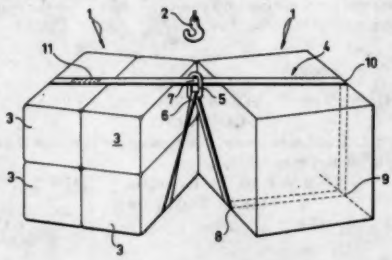
A holding unit in the form of a collar adapted to be mounted on a shaft, with a set screw mounted in the collar for securing the latter to the shaft, and with a plate-like insert mounted in the collar in position to be pressed by the screw against the shaft.

3,740,086
ANIMAL EXCRETA PICKUP DEVICE
Charles C. Rossitto, Bronx, N.Y., assignor to Liotta Sebastian, White Plains, N.Y., a part interest
Filed July 26, 1971, Ser. No. 166,031
Int. Cl. A47f 13/06
U.S. Cl. 294—19 R **7 Claims**



A device for picking up and disposing of animal fecal excreta is disclosed which includes a handle having a disposable container mounted at one end thereof. The container has a cavity opening outwardly of said handle and at least one rib within the cavity. Animal excreta is picked up by pressing the open end of the container against the excreta whereby the excreta engages with the wall and rib of the container cavity. Following pickup, the open end of the container is closed by pressing the container against a snap-on cover. Thereafter, the closed container is disengaged from the handle by sliding a collar, slidably mounted on the handle, against the container to force it from the end of the handle.

3,740,087
LIFTING AND BINDING DEVICE
Karl Johan Back, Helsinki, Finland, assignor to Oy Cyklop AB, Helsinki, Finland
Filed May 11, 1971, Ser. No. 142,244
Claims priority, application Finland, May 12, 1970, 1327/70
Int. Cl. B66c 1/18
U.S. Cl. 294—74 **1 Claim**

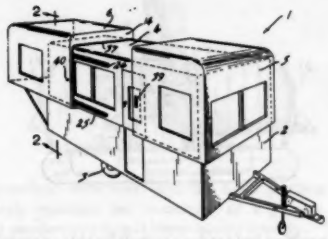


A continuous tape is placed around two or more packages or package piles to extend upward between the packages in the form of a loop which may be provided with an eye link threaded thereon for lifting th packages. In order to prevent the loop from falling between the packages the portion of the tape resting on the top surface of the piles is threaded through the loop or the eye link.

3,740,088
TELESCOPIC END SECTION FOR TELESCOPIC TRAVEL TRAILER
John W. Ratcliff, R.R. 1, Marengo, Ill.
Continuation of Ser. No. 68,071, Aug. 31, 1970, abandoned. This application Jan. 10, 1972, Ser. No. 216,706
Int. Cl. B60p 3/32
U.S. Cl. 296—23 C **11 Claims**

A telescopic travel trailer having telescopic end sections. The trailer includes an upper trailer section disposed to

telescope vertically with respect to a lower trailer section from a retracted lower position for transporting to an extended upper position for camping. End sections are mounted for sliding movement on the open-ended upper trailer section and each end section telescopes horizontally between a retracted



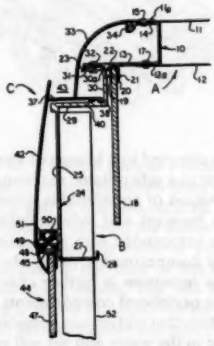
inner position and an extended outer position. A horizontal shelf is located within each end section, and in its lower position serves as a bunk. The shelf can be moved above the level of the upper trailer section so that the telescopic end section can be moved to the retracted inner position for traveling.

3,740,089

ROOF TO SIDE WALL JOINT AREA STRUCTURE FOR TRANSPORTATION TYPE VEHICLES

Theodor C. Schubach, Bonita, Calif., assignor to Rohr Industries Inc., Chula Vista, Calif.

Filed Mar. 8, 1972, Ser. No. 232,821
Int. Cl. B62d *31/02*
U.S. Cl. 296—28 A **6 Claims**



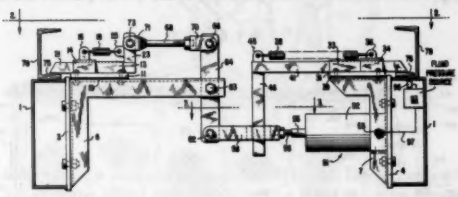
In a transportation type vehicle, an extrusion having an arched upper portion has a transversely curved tongue extending from its upper edge, which fits into a correspondingly curved groove provided in the outer, upper edge portion along each side of the vehicle roof structure. The arched upper portion of each extrusion covers and conceals the roof-to-side wall joint on its associated side of the vehicle, and an inwardly extending flange on the lower end of each arched upper portion has latching engagement with a vehicle side wall element. A flange extending outwardly from the lower end of each arched upper portion, and an upstanding flange along the outer edge of each outwardly extending flange provide a rain gutter for runoff water from the roof, while a plate portion extending downwardly, co-extensively with the upstanding flange, comprises a top strake for the vehicle side wall.

3,740,090

SAFETY LOCK ASSEMBLY

Edward A. Lynde, Jordan Valley, Oreg.

Division of Ser. No. 56,843, July 21, 1970. This application Sept. 29, 1971, Ser. No. 184,865
Int. Cl. B62d *33/06*
U.S. Cl. 296—35 R **9 Claims**



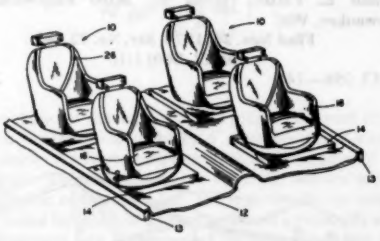
A safety lock assembly for locking together in a predetermined relative position two members which are arranged for movement relative to one another, displacement means being provided for moving the members relative to one another out of the predetermined position and the safety lock assembly being normally maintained in a locking position and being arranged for movement out of the locking position under the influence of driving means, the driving means and displacement means being connected to a common power source and the driving means being actuated when the power from the source is lower than that required for actuating the displacement means.

3,740,091

ENERGY ABSORBING SEAT ASSEMBLY

Joseph A. Krejci, III, 1967 N. 18th Avenue, Apt. 5, Melrose Park, Ill.

Filed June 3, 1971, Ser. No. 149,567
Int. Cl. B60n *1/04*
U.S. Cl. 296—68 **7 Claims**



An energy absorbing seat assembly for use in mobile vehicles to protect the occupant from injury in the event of a collision. The assembly comprises an energy absorbing seat mounted on a frame which is selectively pivotal relative to the vehicle.

3,740,092

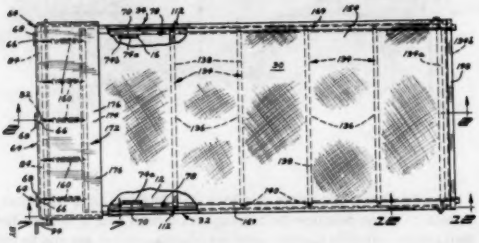
COLLAPSIBLE COVER ASSEMBLY FOR TRUCK BOXES AND THE LIKE

Robert J. Page, Bottineau, N. Dak.

Filed Mar. 1, 1971, Ser. No. 119,475
Int. Cl. B62d *25/06*
U.S. Cl. 296—105 **16 Claims**

A channel-shaped track extends along the upper edge of each side of a truck box, the channel-shaped configuration providing an upwardly facing slot. The tracks contain and guide a plurality of shoe mechanisms each comprised of a

hinged pair of vertical panels. The laterally spaced ends of the bows, the flexible canopy being placed over the bows, are supported by the shoe mechanisms, there being one shoe mechanism for each bow end and the bow end functioning as a hinge pin in each instance. The lower marginal portions of the canopy are anchored to these panels. The rear portions of the tracks maintain the hinged panels in a straight line relationship, whereas the forward portions of the tracks permit the in-



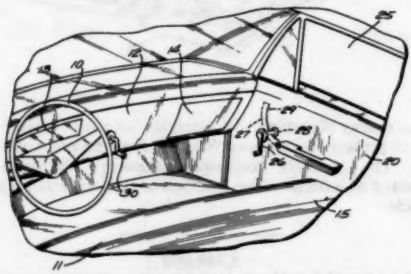
ward pivoting of the panels as the canopy is collapsed or retracted beneath a protective hood. The hood and sections of the tracks therebeneath can pivot upwardly to permit removal of the sides of the truck box. The rear of the truck box is equipped with a hinged tail piece that is automatically raised when the canopy is fully extended or expanded. Further, the tracks are formed so that moisture will not enter the interior of the truck box.

3,740,093

REMOTE CONTROL FOR AUTOMOBILE WINDOW

Norman E. Patzer, N. 22 W. 28166 Edgewater Drive, Pewaukee, Wis.

Filed Nov. 24, 1970, Ser. No. 92,483
Int. Cl. B60j *1/10*
U.S. Cl. 296—146 **2 Claims**



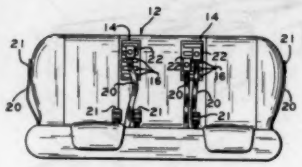
A manually operated mechanical remote control for an automobile window. A hand crank is mounted on the automobile dash board convenient to the driver for manually operating a remote window. The hand crank is coupled to the window operating mechanism by a flexible cable so that by revolving the crank, the driver can readily open or close the window while remaining in the driver's seat behind the steering wheel.

3,740,094

VARIABLE POSITION SEAT BELT BUCKLE HOLDER

Robert J. Hornyak, 144 Everett, Toledo, Ohio

Filed Dec. 14, 1970, Ser. No. 97,548
Int. Cl. A47c *31/00*
U.S. Cl. 297—385 **2 Claims**



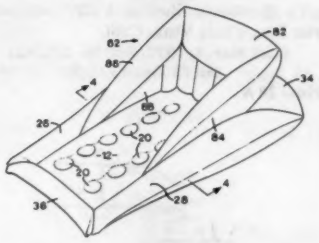
A variable position holder for seatbelt buckles comprised of magnetic members placed in a series position on the holder panel for placing and securing the seatbelt buckles thereon while not being used.

3,740,095

INFLATABLE SUPPORT STRUCTURE

Walter Philip Nail, 260 Renforth Drive, Etobicoke, Ontario, Canada

Filed Jan. 5, 1971, Ser. No. 104,085
Int. Cl. A49b *19/00*
U.S. Cl. 297—454 **10 Claims**



The invention is directed to a lounge of sturdy construction having special merit as a safe reliable sea lounge and is characterized by the provision of an inflatable generally flat central platform which is buoyant and substantially rigid when inflated and which is surrounded with a plurality of separate inflatable peripheral compartments rising above the platform when inflated. The invention is further characterized by the arrangement of the peripheral compartments which provide a buoyancy distribution that will impart complete stability to the lounge when in use in the water and yet will enable the lounge to be easily mounted by a person in the water. The invention is further characterized by the provision of a back and sides to support a person on the lounge in a comfortable reclining position with his weight properly oriented on the lounge.

3,740,096

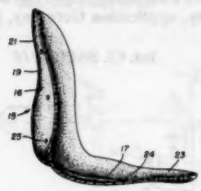
ORTHOPEDIC SEAT

Gordon B. Bridger, Mansfield, Ohio, assignor to Bridg-A-Back, Inc., Columbus, Ohio

Division of Ser. No. 829,582, June 2, 1969, abandoned. This application May 4, 1971, Ser. No. 140,242
Int. Cl. A47c *7/02*
U.S. Cl. 297—459 **4 Claims**

An orthopedic seat comprising a lower substantially horizontal seat portion and an upper substantially vertical back portion rigidly joined to the seat portion. The lower por-

tion is shaped to act as a base support for the pelvis and sacrum which, in turn, will act as a base for the lumbar dorsal



and cervical vertebrae, and the back portion is designed to properly position the vertebrae of a person seated on the lower portion to correct them automatically.

3,740,097

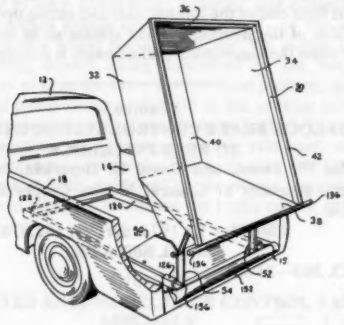
VEHICLE DUMP BED

Shirley L. Parker, Warsaw, and John D. Rohrer, North Manchester, both of Ind., assignors to Parker Industries Inc., Silver Lake, Ind.

Filed May 3, 1971, Ser. No. 139,565

Int. Cl. B60p 1/16

U.S. Cl. 298—1 A **8 Claims**



A dump bed for a vehicle such as a pick-up truck which can be easily mounted on and removed from the vehicle bed, and which includes a pair of uprights secured near the rear end of the dump bed body for moving the dump bed body between a horizontal and substantially vertical position. A hydraulic system incorporated in the base of the dump bed structure performs the dumping action. The bed is provided with fixtures for lifting a refuse container as the bed is lowered, for transporting the container from one place to another.

3,740,098

MULTI-WHEEL UNDERWATER EXCAVATION MACHINE

Friedrich Lachnit, Mulheim/Rhur, Germany, assignor to Deutsche Babcock & Wilcox Aktiengesellschaft, Oberhausen, Germany

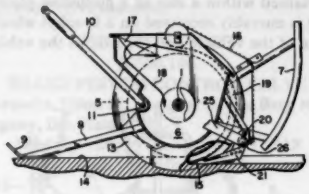
Filed Mar. 19, 1971, Ser. No. 125,983

Claims priority, application Germany, Apr. 3, 1970, P 20 15 894.5

Int. Cl. E02f 7/00

U.S. Cl. 299—8 **5 Claims**

An underwater excavating device having a cutting means to cut into underwater land surfaces, a collecting means for collecting the excavated material, and conveying means for conveying the collected material from the cutting means to the collecting means. A transporting wheel is centrally disposed on the device and has radially outwardly extending edges disposed laterally on each side of the wheel which form a channel around the circumference of the wheel. The conveyor



belt, which is adapted to be received by the radially extending edges of the wheel and is disposed on theexcavating device so as to be guided in the channel, conveys the collected material from the cutting means to the collecting means.

3,740,099

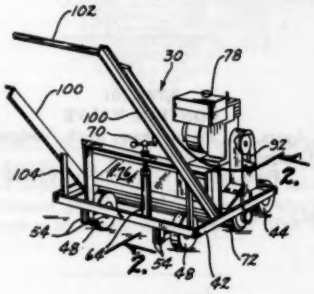
ROOF SHAVING MACHINE

James Lenzner, 123 Arizona, Waterloo, Iowa

Division of Ser. No. 752,597, Aug. 14, 1968, Pat. No. 3,698,972. This application Nov. 8, 1971, Ser. No. 196,645

Int. Cl. B27c 1/02

U.S. Cl. 299—39 **1 Claim**



A machine for shaving expanded plastic on a roof structure wherein the machine includes a rotatable drum extending transversely of a frame carrying front and rear ground engaging wheels. The rear wheels are vertically adjustable to vary the thickness of the drum cut. The rear wheels are connected to the frame by a pair of pivotal arms and a vertically adjustable adjustment unit is connected between the frame and an axle from which the rear wheels are mounted. An engine is carried on the frame above the drum. A plurality of spaced apart longitudinally extending scarfing blades are provided on the exterior surface of the drum.

3,740,100

DEVICE FOR QUICK FIXING OR DISMOUNTING RESPECTIVELY OF A WHEEL FROM THE SUPPORTING FRAME OF A VEHICLE, PARTICULARLY A PRAM OR PUSH-CHAIR FOR CHILDREN

Giuseppe Perego, Via De Gasperi 50, Arcore, Italy

Filed Apr. 8, 1971, Ser. No. 132,269

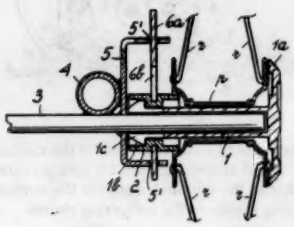
Claims priority, application Italy, Nov. 13, 1970, 31725 A/70

Int. Cl. B60b 27/02

U.S. Cl. 301—121 **6 Claims**

A wheel mounting construction particularly for engaging a wheel of a child's toy on an axle of the toy to facilitate its positioning and rotatable mounting, comprises a wheel having a

hub portion forming a sleeve which engages over the axle and is rotatable thereon. The sleeve is held against withdrawal by the resilient engagement of slot-separated segments on one end of the sleeve into a separate small size sleeve member which is retained within a slot of a guillotine plate. The guillotine plate is movably mounted on a bracket which is affixed to the frame of the vehicle and the axle of the vehicle extends



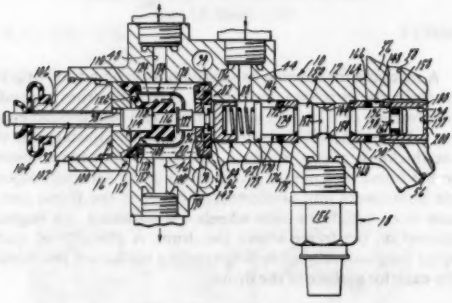
through the slot of the plate. The slot is sized so that a wall-bounding smaller diameter portion of the slot engages upwardly within a recess of the holding sleeve for the wheel hub and it prevents its withdrawal. The plate may be moved against a spring-biasing force to position the small sleeve in a large diameter portion and thus free it so that it may be removed axially along with the associated wheel.

3,740,101

CONTROL VALVE

David T. Ayers, Jr., Birmingham, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.

Filed Jan. 4, 1971, Ser. No. 103,596
Int. Cl. B60t 8/26
U.S. Cl. 303—6 C 9 Claims



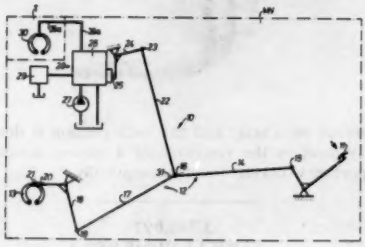
A control valve for connection between a split master cylinder and the front and rear brake motors or cylinders in a split fluid pressure system including metering means for impeding pressure fluid flow from the split master cylinder to the front brake cylinders at fluid pressures less than a predetermined value, and a proportioning valve for effecting an applied fluid pressure in a predetermined ratio with fluid pressure supplied thereto in excess of another predetermined value and responsive to yet another predetermined value of the supplied fluid pressure greater than one of the first mentioned predetermined values to effect an applied fluid pressure in substantially a one to one ratio therewith.

3,740,102

MOTOR VEHICLE BRAKING ARRANGEMENT

Gunther Schwerin, Fellbach, Germany, assignor to Robert Bosch G.m.b.H., Stuttgart, Germany

Filed Feb. 3, 1972, Ser. No. 223,206
Claims priority, application Germany, Feb. 27, 1971, P 21 09 379.8
Int. Cl. B60t 15/16
U.S. Cl. 303—13 6 Claims



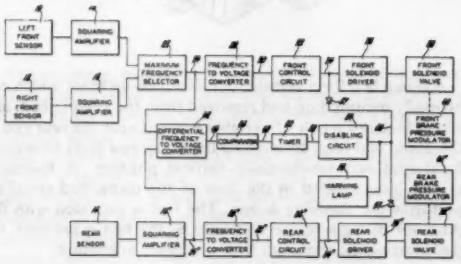
A motor vehicle is provided with a mechanical brake system which is to supply, when actuated, the impulse for operating the hydraulic brake system of a trailer which is to be towed by the motor vehicle. The mechanical brake system of the motor vehicle has a pair of articulately connected linkage rods which define with one another an angle and a pull rod connected with at least one of the linkage rods and acting upon an actuating valve of the hydraulic brake system so as to operate the valve when the mechanical brake system is actuated.

3,740,103

ANTI-LOCK BRAKE CONTROL SYSTEM WITH FRONT TO REAR INTERLOCK

Douglas W. Sweet, and David G. Beyerlein, both of Flint, Mich. assignors to General Motors Corporation, Detroit, Mich.

Filed May 13, 1971, Ser. No. 142,878
Int. Cl. B60t 8/08
U.S. Cl. 303—21 EB 5 Claims

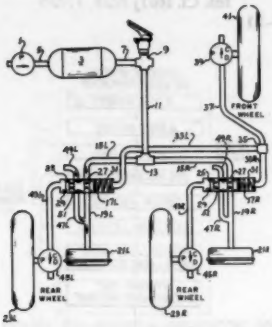


A four-wheel anti-lock brake control system has a control circuit and brake pressure modulators for controlling the front and rear brakes of a vehicle in accordance with a function of wheel speeds for preventing wheel lock. A wheel lock circuit responsive to front and rear wheel speeds prevents the condition of anti-lock cycling of the front brakes when the rear brakes are not cycling by disabling the entire control or at least the control to the front wheels. Rear wheel lock is sensed in one embodiment by comparing front and rear wheel speeds and determining when the front speed exceeds the rear by a significant amount for a certain time period, and in another embodiment by determining when the front speed exceeds a given value and the rear speed is below another lower value for a certain time period.

3,740,104
FLUID BRAKE SYSTEM WITH SKID CONTROL

Lloyd J. Wolf, 2425 Irving Boulevard, Dallas, Tex.

Filed Aug. 2, 1971, Ser. No. 168,014
Int. Cl. B60t 8/06
U.S. Cl. 303—21 BB 12 Claims

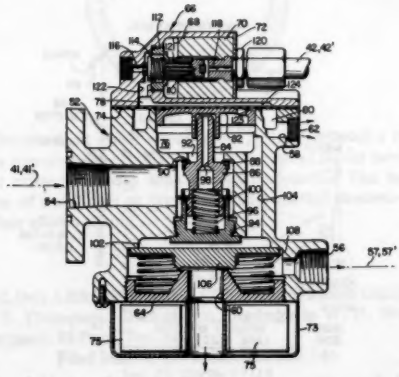


A fluid brake system for automotive vehicles includes a skid control for releasing the brakes on any wheel when skidding of that wheel commences. The skid control comprises a fluid pressure-responsive normally open sensing valve in the fluid pressure line to each wheel brake cylinder, and constant displacement vacuum pumps driven respectively by the wheels with brakes and a wheel brakeless sensor, the pumps on the brake-mounting wheels being connected to the respetive sensing valves to urge the same toward open position, and the sensor wheel pump being connected to the sensing valves to close the same whenever the wheel whose brake is controlled by the respective valve commences to skid and suction produced by the respective valve commences to skid and substantially exceeds that produced by the wheel pump on the skidding wheel whereby to release the brake on the skidding wheel.

3,740,105
INTEGRATED ANTI-WHEEL LOCK CONTROL VALVE ASSEMBLY

Alton B. Holmes, Troy, Mich., assignor to North American Rockwell Corporation, Pittsburgh, Pa.

Filed Jan. 3, 1972, Ser. No. 214,767
Int. Cl. B60t 8/06
U.S. Cl. 303—21 F 6 Claims

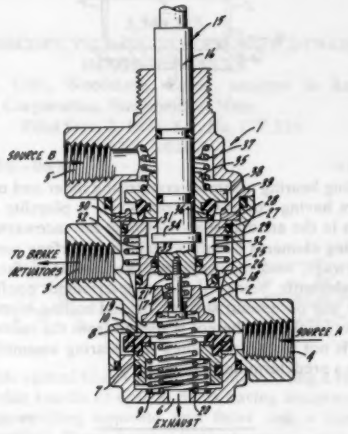


An integrated anti-wheel lock control valve assembly and wheel speed signal responsive computer for selectively connecting an outlet passage to a source of fluid under pressure or to exhaust, the action of the valve being controlled by regulation of the fluid pressure in a control chamber selectively vented or connected to a source of fluid under pressure by a solenoid operated control valve actuated under control of the computer in such valve assembly.

3,740,106
BRAKE SYSTEM CONTROL VALVE

Charles Horowitz, Niles, Ill., assignor to The Berg Manufacturing Company, Des Plaines, Ill.

Filed Apr. 26, 1971, Ser. No. 137,518
Int. Cl. B60t 13/22
U.S. Cl. 303—71 9 Claims

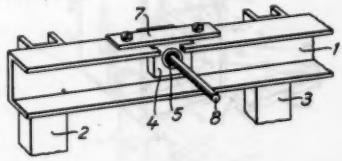


A brake system control valve in which elements are movable in one direction to supply fluid pressure from a first source, in the opposite direction to exhaust the valve and an overtravel element provides for further movement in the original direction to supply fluid pressure from a second source.

3,740,107
SHAFT BEARING

Hans-Georg Fromme, Wetzlar, Germany, assignor to Fromme Forderanlagen GmbH, Wetzlar, Germany

Filed Mar. 14, 1972, Ser. No. 234,574
Claims priority, application Germany, Apr. 21, 1971, P 21 19 283.6
Int. Cl. F16c 35/00
U.S. Cl. 308—26 3 Claims

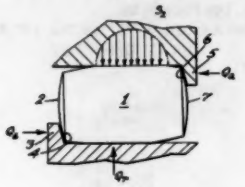


A bearing for a shaft is mounted by a rubber-metal connection in a rubber plate which has a thickness equal to the width of the bearing in axial direction. On two opposite edges the rubber plate is provided with grooves so that it can be inserted in an accordingly shaped opening of a shaft carrier. The rim of the opening constitutes the tongues which fit into the grooves. In the carrier the rubber plate is secured by a screwed-on retaining plate. This design allows for a ready and uncomplicated replacement of the bearing in case it has worn out.

3,740,108
CYLINDRICAL ROLLER BEARING

Lars Martin Ingemar Fernlund, Hindas, Sweden, assignor to SKF Industrial Trading and Development Company N.V., Amsterdam, Netherlands

Filed Nov. 15, 1971, Ser. No. 198,568
Int. Cl. F16c 33/00
U.S. Cl. 308—212 **5 Claims**

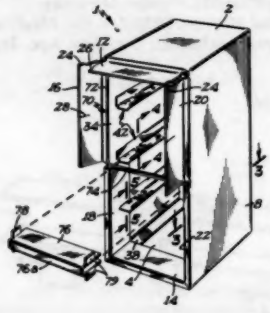


A rolling bearing assembly comprising inner and outer ring members having confronting raceways, a plurality of roller elements in the annular space between the raceways, each of said rolling elements having a peripheral surface confronting the raceways, said raceways and peripheral surface of the rolling elements being of a predetermined configuration whereby the peripheral surface of said rolling elements adjacent the axial ends thereof is spaced from the raceways and thereby is not under load when the bearing assembly is subjected to a predetermined axial load.

3,740,109
FIBERBOARD FILE CABINET AND DRAWER GLIDE STRUCTURE

James L. Pfaffendorf, Maple Grove, and Marlyn D. Johnson, Minneapolis, both of Minn., assignors to Fidelity File Box, Inc., Minneapolis, Minn.

Filed Jan. 28, 1972, Ser. No. 221,590
Int. Cl. A47b 43/02
U.S. Cl. 312—261 **6 Claims**

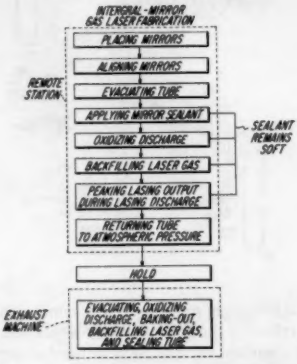


A lightweight, fiberboard file cabinet having a plurality of drawers slidably supported on vertically spaced, rigid drawer glides removably suspended on the upright side panels of a liner inside the cabinet outer housing. Each drawer glide is comprised of a horizontal, drawer-supporting runner and upwardly and downwardly extending retainer elements which bear against opposite faces of the liner side panels, the glides being attached to the liner through horizontal slots therein.

3,740,110
FABRICATION METHOD FOR GAS LASERS HAVING INTEGRAL MIRRORS

Murray Robert Horton, Lititz, and Robert Stephen Kutay, East Petersburg, both of Pa., assignors to RCA Corporation, New York, N.Y.

Filed May 10, 1971, Ser. No. 141,635
Int. Cl. H01j 9/38, 17/26
U.S. Cl. 316—21 **6 Claims**

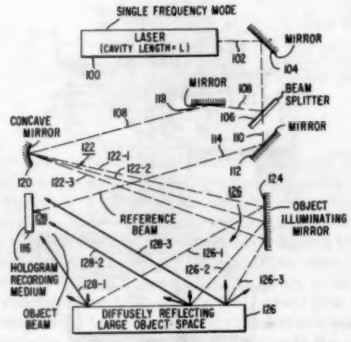


Attaching integral mirrors to the opposite ends of the laser tube with a sealant which remains soft for a given time, and then while the sealant is still soft operating a lasing discharge in the tube until mechanical equilibrium is reached, and thereafter in the presence of this lasing discharge adjusting the relative positions of the mirrors to substantially achieve peak output from the laser. Useful for mass production of laser tubes, where the peaking of the laser output is done at a remote station, after which the tube is returned to atmospheric pressure and can be stored until it can be finally processed by a conventional exhaust machine.

3,740,111
HOLOGRAPHIC RECORDING SYSTEM FOR LARGE OBJECTS

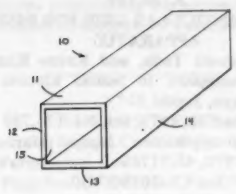
Istvan Gorog, Princeton, and Fred William Spong, Lawrenceville, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,508
Int. Cl. G02b 27/00
U.S. Cl. 350—3.5 **3 Claims**



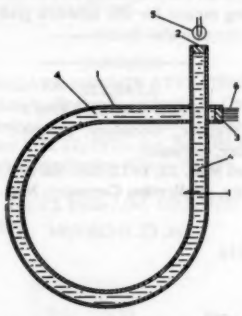
A holographic arrangement for recording a high quality hologram of an object having a length many times the coherence length of the coherent light waves employed in recording the hologram.

3,740,112
MULTIPLE IMAGE OPTICAL DEVICE
Edward Thomas Lundgren, 83 Twig Lane, Levittown, N.Y.
Filed Mar. 22, 1971, Ser. No. 126,631
Int. Cl. G02b 5/14, 27/08
U.S. Cl. 350—96 T 8 Claims



An optical device for creating geometric patterns based upon actual viewed objects, comprising an elongated tube having a polygonal transverse cross-section. The inner walls of the tube are made reflective to create multiple reflections of light impinging through the open end, and these walls may be made transparent and color restrictive to enhance the apparent brightness and beauty of the pattern developed.

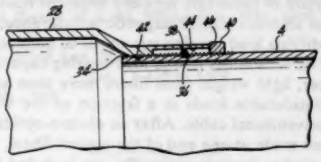
3,740,113
LIGHT GUIDE
Michael Cass, Welwyn Garden City, England, assignor to Imperial Chemical Industries, Limited, London, England
Filed Feb. 16, 1970, Ser. No. 11,431
Claims priority, application Great Britain, Mar. 13, 1969, 13,205/69
Int. Cl. G02b 5/14
U.S. Cl. 350—96 R 9 Claims



A flexible light guide comprises a flexible tube of a transparent thermoplastic containing a transparent liquid having a higher refractive index than the thermoplastic. The tubing may be of a polymer or copolymer of 4-methyl pentene-1 or any clear plastic tubing.

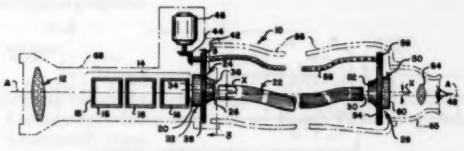
3,740,114
SEALING ARRANGEMENT FOR TELESCOPIC SIGHTS
John F. Thompson, El Paso, Tex., assignor to W. R. Weaver Company, El Paso, Tex.
Filed Mar. 6, 1972, Ser. No. 232,140
Int. Cl. G02b 23/16
U.S. Cl. 350—67 1 Claim

An arrangement for sealing the juncture between the ocular lens housing and the main scope barrel on a telescopic sight is provided. The seal prevents ambient air from entering the scope and fogging the internal opticas of the scope, and yet



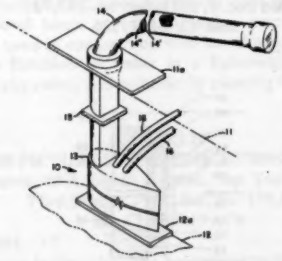
permits focussing of the ocular lens with respect to the remaining lenses and reticle in the scope.

3,740,115
FIBERSCOPE VIEWING SYSTEM WITH DYNAMIC IMAGE ENHANCER
Henry B. Cole, Woodstock, Conn., assignor to American Optical Corporation, Southbridge, Mass.
Filed Sept. 2, 1971, Ser. No. 177,229
Int. Cl. G02b 5/16
U.S. Cl. 350—96 B 4 Claims



A flexible optical fiber viewing system including a relatively long and thin bundle of optical fibers having image-receiving and image-emitting opposite end faces and a bundle of tapered optical fibers having image-receiving and image-emitting opposite end faces. The image-emitting and image-receiving faces of the bundle of tapered fibers and the flexible fiber bundle respectively are optically interfacially coupled and one is rotated eccentrically relative to the other to effect nutation of images conveyed by the bundle of tapered fibers upon the image-receiving face of the flexible bundle of optical fibers. Rotated synchronously with the bundle of tapered optical fibers, adjacent the image-emitting face of the flexible bundle, is a tilted plate of glass or its equivalent which receives the optical images emitted by the flexible bundle for neutralizing motion imparted to these images at the image-receiving end of the bundle.

3,740,116
STRENGTH MEMBERS AND STRUCTURAL COMPONENTS INTEGRALLY CONTAINING FIBER OPTIC ELEMENTS
Daniel E. Andrews, Jr., 1563 Yost Drive, San Diego, Calif.
Filed Aug. 27, 1971, Ser. No. 175,526
Int. Cl. G02b 5/16
U.S. Cl. 350—96 B 7 Claims



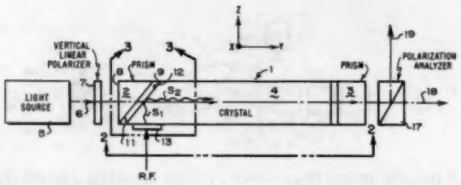
A bundle of fiber optic elements functions as the mechanical (usually tensile) load bearing member in telemetry appli-

cations calling for the transfer of data between two points. The superior data transfer capabilities of optical fibers, for example, elmiination of cross-talk between adjacent fibers and immunity from ambient electromagnetic interference, are realized by modifying load bearing structures to include the optical fibers. The substantial tensile load bearing capacity of narrow diameter, light weight glass fibers more than adequately supports considerable loads at a fraction of the weight and bulk of a conventional cable. After an electro-optical conversion has been made at one end of the optical fibers, image intensifier or similar devices optionally, are included to further enhance the degree of reliability of the optical radiation representative of data.

3,740,117
ACOUSTO-OPTIC FILTER HAVING AN INCREASED OPTICAL BEAM APERTURE

Laurence M. Hubby, Jr., Palo Alto, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed July 22, 1971, Ser. No. 165,112
Int. Cl. G02f 1/24
U.S. Cl. 350—149 **16 Claims**

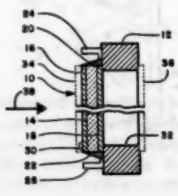


In an acousto-optic filter a prism, cut at a complimentary angle to the inclined input face of the photoelastic birefringent crystal, is disposed between the light source and the crystal. An index of refraction matching medium is disposed in a gap between the input face to the crystal and the parallel output face of the prism such that the input light beam, which is directed perpendicular to the input face of the prism is diffracted by the prism and by the index matching medium along a path within the crystal which is collinear with an excited acoustic wave within the crystal, whereby a maximum optical beam aperture size is obtained. A similar prism with an index of refraction matching medium is disposed at the output end of the crystal for retaining the maximum optical beam aperture at the output end of the filter.

3,740,118
SELF STRAIN BIASED FERROELECTRICELECTROOPTICS

Cecil W. Land, and Willis D. Smith, both of Albuquerque, N. Mex., assignors to The United States of America as represented by the United States Atomic Energy Comission, Washington, D.C.

Filed Dec. 1, 1971, Ser. No. 203,726
Int. Cl. G02f 1/26
U.S. Cl. 350—150 **10 Claims**

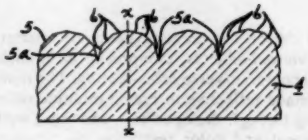


An electrooptic birefringent device and method of achieving birefringence including providing an electric field from one major surface to another of a ferroelectric ceramic plate which is capable of exhibiting electrically induced birefringence effects to electrically modify dimensions of said plate, rigidly fastening edge portions of the plate to a rigid structure, and thereafter modifying dimensions and birefringence of said plate by application of electric fields between the major surfaces of the plate.

3,740,119
OPTICAL LENTICULAR GRID FOR DISPLAY APPARATUS

Tooshi Sakurai; Satoshi Tada, and Kazuo Kazama, all of Tokyo, Japan, assignors to Sansui Electric Co., Ltd., Suginami-ku, Tokyo, Japan

Filed Mar. 16, 1971, Ser. No. 124,785
Claims priority, application Japan, Mar. 17, 1970, 45/22463; Apr. 2, 1970, 45/31725
Int. Cl. G02b 27/00
U.S. Cl. 350—167 **10 Claims**

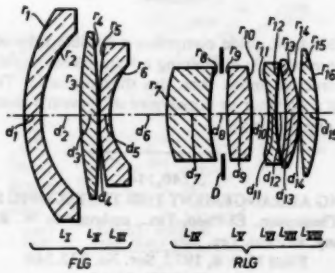


An optical grid of a plurality of optically elongated or circular lenses formed in juxtaposed parallel or concentric relation, respectively, with each of said lenses having a characteristic arcuate contour of polygonal shaped cross-section which is symmetrical on either side of a line passing through the center of the lens. The optical grid is employed in a display apparatus having a guide frame with a movable frame reciprocative in the guide frame. A projecting screen is provided on the front face of the guide frame behind which, in spaced relation, is positioned the optical grid. The front face of the movable frame is provided with an artwork grid, the subject matter of which is displayed on the projecting screen through the optical grid. Illuminating means for the artwork grid are located on the rear face of the movable frame.

3,740,120
WIDE-ANGLE LENS

Rudolf Ruhl, Wetzlar, Germany, assignor to Ernst Leitz GmbH, Wetzlar, Germany

Filed Mar. 22, 1972, Ser. No. 236,948
Claims priority, application Germany, Mar. 26, 1971, P 21 14 729.5
Int. Cl. G02b 9/64
U.S. Cl. 350—214 **3 Claims**



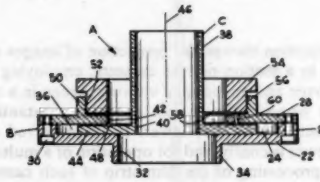
In a wide-angle lens comprising a negative front lens group, and a positive rear lens group the negative front lens group is

composed of two negative meniscus lenses and a double-convex lens element positioned therebetween. The negative menisci consist of glass having an extremely low index of refraction and a high Abbe number, and the double-convex lens element also shows a very low dispersion. This results in a low color dispersion of the whole negative front lens group and improves greatly the possibilities for a chromatic correction in the image field. It further allows the design of the front lens element of the rear lens group as a compact meniscus, thereby overcoming the necessity of splitting this lens into a plurality of separate or cemented component lenses.

3,740,121
VISUAL SCANNER

George Everett, Burlington, Conn., assignor to Gros-Ite Industries, Inc., Farmington, Conn.

Filed Nov. 3, 1971, Ser. No. 195,349
Int. Cl. G02b 7/02
U.S. Cl. 350—247 **14 Claims**

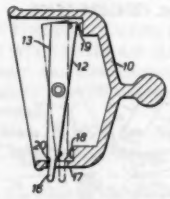


A device is provided for scanning the field of view of an optical instrument. The device includes a housing for connection to the optical instrument and a scanning means which has freedom to move in any direction to cover the area of an aperture in the housing which communicates with the optical instrument. Holding means releasably fix the position of the scanning means with relation to any given portion of the aperture and, therefore, the field of view. Interchangeable optical means may be mounted on the scanning means to increase the magnification of the area viewed.

3,740,122
ANTIGLARE MIRROR ATTACHMENTS

David Stern, Slough, England, assignor to Combined Optical Industries Limited, Slough, England

Filed Feb. 12, 1971, Ser. No. 105,832
Claims priority, application Great Britain, Jan. 23, 1970, 3,437/70
Int. Cl. B60r 1/04; G02b 5/08
U.S. Cl. 350—281 **6 Claims**

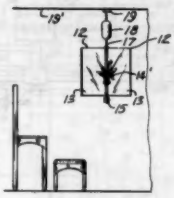


A rear view driving mirror comprises a mirror body having two reflecting surfaces of different reflective powers and angled to one another so that one will reflect incident light in one direction and one in another direction whereby a driver can select an image of high or low intensity dependent on the conditions, the body having integral hinge means engaging hinge means of a carrier, a retainer being provided to hold the mirror in a selected one of two positions relative to the carrier.

3,740,123
PULL-DOWN MIRROR

Lorraine M. Leitl, Milwaukee, Wis., assignor to Kenneth G. Leitl and Jimmy M. Leitl, Milwaukee, Wis., part interest to each

Filed Aug. 26, 1971, Ser. No. 175,105
Int. Cl. G02b 5/08
U.S. Cl. 350—305 **1 Claim**

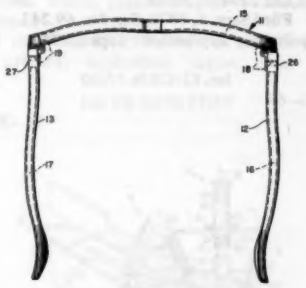


A mirror device which may be pulled down from the ceiling for use. This device includes a hub portion having mirror faced wings extending radially outward and includes eye means for the attachment of a floral or other arrangement for decorative purposes.

3,740,124
FLOATABLE SPECTACLES

Abraham Goodman, Essex Fells, N.J., and Conrad Leblanc, Leominster, Mass., assignors to Foster Grant Co., Inc., Leominster, Mass.

Filed Sept. 7, 1971, Ser. No. 177,976
Int. Cl. G02c 1/00
U.S. Cl. 351—43 **14 Claims**



A floatable pair of spectacles having an over-all specific gravity of less than 1 while being formed of solid material, the total amount of which included in all portions of said spectacles having an average specific gravity of at least 1. Compartments within the frame of the spectacles define a volume of not less than about 25 percent of the over-all volume of the frame. Novel hinge support mounting portions and frame joints are used in conjunction with novel parameter selection to obtain flotation in water in a lightweight, inexpensive, mechanically strong and esthetically pleasing form.

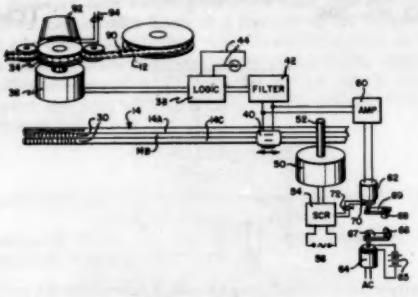
3,740,125
MOTION PICTURE SOUND PROCESSING APPARATUS

Hilary Harris, 49-A Eighth Avenue, New York, N.Y.

Filed Sept. 8, 1971, Ser. No. 178,630
Int. Cl. G03b 31/04
U.S. Cl. 352—17 **2 Claims**

Apparatus is described for processing motion picture film and audio sound data recorded on standard sprocketless magnetic tape. A tape synchronizing system is used in which the film is driven by a stepper motor which, in turn, is controlled

by synchronizing pulses recorded on tracks of the audio tape. The film can be driven in forward and reverse directions at various speeds, with exact synchronization being maintained between the film and tape during editing.



After the sound tracks have been recorded and assembled on their respective tapes, they can be mixed under the control of conductive strips placed on the film which, through a special programming unit, control the starting and stopping of the various tapes.

3,740,126

PANORAMIC MOTION PICTURE CAMERA

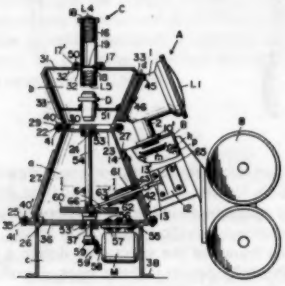
Seizo Goto, Tokyo, Japan, assignor to Goto Optical Manufacturing Co., Ltd., Tokyo, Japan

Filed Sept. 3, 1970, Ser. No. 69,242

Claims priority, application Japan, Mar. 12, 1970, 45/20491

Int. Cl. G03b *37/00*

U.S. Cl. 352—69 **5 Claims**



This is a panoramic motion picture camera for taking panoramic pictures by means of a plurality of cameras disposed radially at equal intervals in a circle. For photographing the entire scene pano-hemispheric within at least 120° above the horizon by using wide-angle lenses a plurality of cameras (usually five cameras) are disposed with their optical axis inclined at an elevation angle of 2. The optical axis is bent 90° on a mirror so as to be led to a position higher by a distance corresponding to α than the center line of the film, and a finder comprising a wide-angle lens which permits the viewing of all the fields covered by the individual cameras is provided in the center thereof. The finder is used in combination with a vidicon camera connected electrically to a monitoring picture receiver.

3,740,127

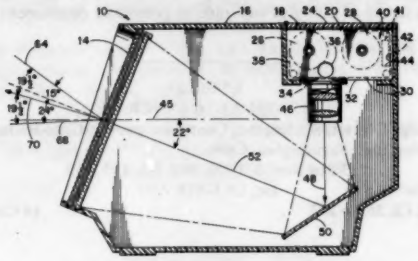
PROJECTOR APPARATUS

Philip G. Baker, Peabody; Stewart Bennett, Concord, and Richard W. Young, Wellesley Hills, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Aug. 24, 1971, Ser. No. 174,373

Int. Cl. G03b *23/02*

U.S. Cl. 352—72 **5 Claims**



A rear projection viewer, for projection of images of a film strip housed in a motion picture cassette, employing a single reflective mirror and an inclined viewing screen in a compact arrangement wherein the screen provides substantially the complete front face of the viewer. In its preferred embodiment, the viewer is configured for operation of a multipurpose cassette for processing of the film strip of such cassette and subsequent projection of the images recorded on such film strip, and the cassette includes a processing station adapted for optimumly dispensing processing fluid across the film strip when the cassette is maintained in an attitude such that the incremental sections of the film progressively advanced across the projection station opening are located in a predetermined plane. A cassette-receiving well, disposed in the top of the viewer housing, is adapted to receive the cassette and locate it below the top of the screen in an operative position with the progressively advanced, incremental sections of film disposed in the predetermined plane. Preferably, the screen is a lenticular structure which transmits projected images substantially uniformly over a given viewing zone, and additionally directs the viewing zone downwardly from an axis normal to the screen in at least partial compensation for the angle of inclination of the screen such that the viewing zone will include an audience area located along the longitudinal axis of the apparatus.

3,740,128

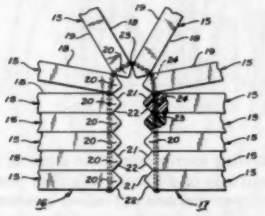
AMUSEMENT DEVICE

Alan Adler, 752 LaPara Avenue, Palo Alto, Calif.

Filed Nov. 1, 1971, Ser. No. 194,158

Int. Cl. G03b *25/00*

U.S. Cl. 352—99 **17 Claims**



A child's toy or amusement device comprising a plurality of thin rigid plaques of generally planar form adapted to be disposed in stacked juxtaposition one upon another with the

faces of each plaque in contiguous relation with those immediately preceding and succeeding the same. The plaques are pivotally secured to each other adjacent one end thereof and along each face to both the immediately preceding and succeeding plaques, thereby enabling the plaques to be manipulated so as to articulate sequentially from one stack to another in alternate opposite directions. The faces of the plaques may be provided with indicia of a sequential character so as to depict motion as said plaques are displaced from one stack to another.

3,740,129

CAMERA FILM MOVING MECHANISM

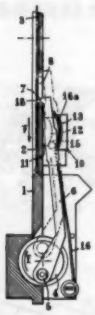
Jacques Lecoeur, Paris, France, assignor to Eclair International, Paris, France

Filed Aug. 2, 1971, Ser. No. 168,026

Claims priority, application France, Jan. 27, 1971, 7102663

Int. Cl. G03b 1/22

U.S. Cl. 352—193 **10 Claims**



This film moving mechanism for motion picture camera comprises a feed-claw lever pivotally mounted in a plane perpendicular to a perforated film edge. An element such as an eccentric imparts longitudinal oscillatory motion to the lever in the film feed direction. The movements of the lever and of its claw are guided by a stud slidably engaging a cam, the stud being rigid with the lever and the cam being fixed, the stud and cam being disposed between the lever and the film. Spring means urge the stud for proper engagement with the cam.

ERRATUM

For Class 352—91 see:
Patent No. 3,740,146

3,740,130

ARRANGEMENT FOR PRODUCING FADE-IN AND FADE-OUT EFFECTS WITH PAIRS OF SLIDE PROJECTORS

Eduard Wagensonner, and Ulrich Schmidt, both of Muenchen, Germany, assignors to AFGA-Gevaert Aktiengesellschaft, Leverkusen, Germany

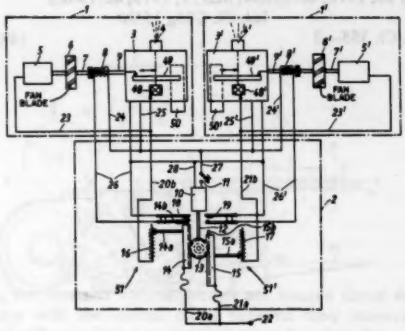
Filed Mar. 15, 1971, Ser. No. 124,345

Claims priority, application Germany, Mar. 25, 1970, G 70 10 970.5

Int. Cl. G03b 21/20, 23/16, 23/04

U.S. Cl. 353—86 **10 Claims**

An arrangement wherein two slide projectors project images onto the same area of a screen and wherein the intensity of light furnished by the lamp behind the slide occupying a projection position in one of the projectors is gradually reduced while the intensity of light furnished by the lamp behind the slide occupying a projection position in the other projector gradually increases. The slide changers of the projectors are actuated by cooling fans which are normally driven by motors. The mass of each fan is sufficient to insure continued rotation by inertia when the respective motor is stopped and for an interval which suffices to enable the rotating fan to actuate the respective slide changer. A control unit gradually dims one of the lamps while the other lamp furnishes light of gradually increasing intensity. The control unit thereupon



stops the motor for the fan in the projector which contains the lamp furnishing light of reduced intensity and simultaneously connects such fan with the corresponding slide changer so that the latter replaces the slide whose image was projected with fade-out effect while the slide whose image was first projected with fade-in effect is illuminated by light of maximum intensity.

3,740,131

DEVICE FOR AUTOMATICALLY DISPLAYING AND WITHDRAWING AN ORIGINAL POSITIONING SCALE

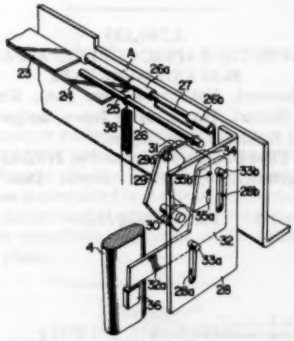
Hiroshi Hirose, Tokyo, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

Filed Dec. 27, 1971, Ser. No. 212,159

Claims priority, application Japan, Dec. 25, 1970, 45/130832

Int. Cl. G03b 27/62

U.S. Cl. 355—75 **5 Claims**

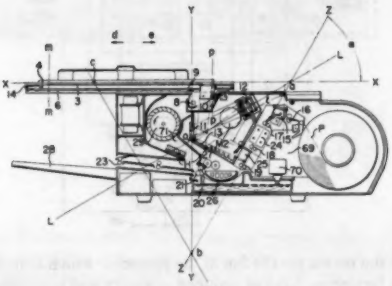


A device provided in copying apparatus of the type in which exposing of copy sheets to an optical image of the original is carried out by using reflected light. The device is effective to move an original positioning scale to display the scale at one end edge of the transparent original receiving surface, on an inner side thereof, when the original is placed on the original receiving surface at the start of an exposing operation, and to withdraw the scale out of view of the operator at the time of actual exposure, so that the scale is not in the path of the light reflected from the original while the copy is being exposed.

3,740,132
ELECTROPHOTOGRAPHIC APPARATUS

Shigehiro Komori, Yokohama; Jiro Sato, Kawasaki, and Hiroyuki Hattori, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 29, 1971, Ser. No. 111,058
Claims priority, application Japan, Feb. 2, 1970, 45/9197; Feb. 18, 1970, 45/13934; Mar. 7, 1970, 45/19462
Int. Cl. G03g 15/00
U.S. Cl. 355—3 10 Claims

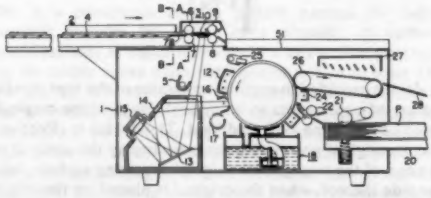


An electrophotographic copying apparatus, especially suitable for use in offices, having an improved optical system for reducing the space between an original illuminating station and an exposure station while maintaining a required light path length, and having an original carriage disposed for horizontal sliding movement on top of the apparatus. The various copy paper processing devices of the apparatus are disposed about the optical system in a compact manner, wherein the processing devices include a device for electrically charging lengths of copy paper; a device exposing the charged paper; a device for developing the exposed paper; a device for fixing and drying the developed copies; and a device for cooling the apparatus. The optical system includes various conventional mirrors and an in-mirror lens arranged to provide a folded light path. Disclosed also is structure for loading, feeding, and cutting copy paper supplied within the apparatus in roll form.

3,740,133
ELECTROPHOTOGRAPHIC COPYING APPARATUS OF SLIT EXPOSURE TYPE

Shigehiro Komori, Yokohama; Jiro Sato, Kawasaki, and Hiroyoki Hattori, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 23, 1971, Ser. No. 211,383
Claims priority, application Japan, Dec. 30, 1970, 45/126316
Int. Cl. G03g 15/04
U.S. Cl. 355—8 5 Claims

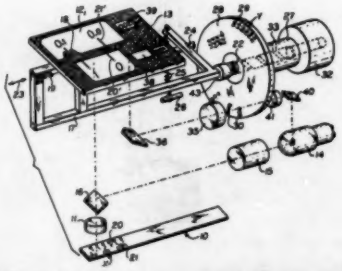


An electrophotographic copying apparatus of slit exposure type comprises a sheet original conveyor mechanism provided on top of the machine housing, and an original carriage having a transparent sheet of glass or the like provided contiguously with the frame of the conveyor mechanism. When a sheet original is to be copied, such original is transported by the sheet original conveyor mechanism for a through-slit exposure. When a thick original such as book or the like is to be copied, the original carriage with the thick original thereon is forced to move with the conveyor mechanism to disconnect the mechanism from its drive system but connect the drive system to the original carriage, whereafter the carriage is moved for the thick original thereon to be subjected to a through-slit exposure.

3,740,134
MEASURING SYSTEM

Walter Miller, Traunstein, and Kurt Flichtinger, Traunreut, both of Germany, assignors to Dr. Johannes Heidenhain, Traunstein, Germany

Filed June 6, 1969, Ser. No. 830,948
Claims priority, application Germany, June 10, 1968, P 17 73 594.3
Int. Cl. G03b 21/00
U.S. Cl. 353—41 1 Claim

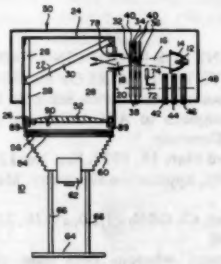


A measuring device including a scale and a reader including a viewing window which comprises means for a fine division of the intervals of a measuring division, the measuring system has at least two divisions of different measures, and the latter is arranged on one side of the scale adjacent each other.

3,740,135
COLOR ENLARGING APPARATUS

Louis L. Weisglass, New York, N.Y., assignor to Berkey Technical, Woodside, N.Y.

Filed Dec. 14, 1971, Ser. No. 207,823
Int. Cl. G03b 27/32, 27/52
U.S. Cl. 355—32 13 Claims



In the color enlarging apparatus disclosed, three color filters partially intercept a white light beam emerging from a light source. The filters thus divide the beam into a white portion and an intensely colored portion. The beam enters a mixing chamber through a porthole and is bounced off white-opaque dispersing walls to mix the white and intensely colored light.

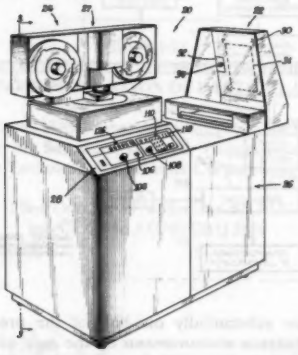
The light exits through a diffuser transverse to its entrance direction. The diffused light illuminates a color film, such as a slide or negative, mounted in a film carrier. Optical means then focus the light from the film onto color printing paper. A cylindrical mirror at the chamber entrance helps mix the light. The diffuser at the exit of the chamber is shaped to produce uniform intensity distribution. The surface of the carrier facing the diffuser, is painted white or mirrored. The top surface thus reflects the portion of the light which does not strike the film and directs it back through the diffuser into the chamber. The side of the diffuser facing the carrier is matted to prevent re-reflection of light by the diffuser onto the edges of the film.

3,740,136

MICRO-IMAGE VIEWER-PRINTER MACHINE

William R. Maloney, Deerfield, and Harry Margulis, Hoffman Estates, both of Ill., assignors to Addressograph-Multigraph Corporation, Mount Prospect, Ill.

Filed May 5, 1972, Ser. No. 250,687
Int. Cl. G03b *27/52, 27/70*
U.S. Cl. 355—43 **33 Claims**



A micro-image viewer-printer machine for selectively viewing or reproducing micro-images, particularly those stored on a roll of microfilm, includes a reference frame counter that initiates its counting operation in response to the appearance of a first image on a roll of microfilm. The reference frame counter maintains a cumulative count of all frames passing through the device in a forward direction and reduces that count by the number of frames passed through the device in a reverse or rewind direction. A keyboard encoder enables the entry of a desired number of reproductions per frame and a desired number of consecutive frames to be reproduced. Control means are provided for automatically reproducing a variable, preselectable number of copies of an image on the roll of microfilm. A further control circuit automatically reproduces a variable, preselectable number of copies of a variable, preselectable number of consecutive frames on a roll of microfilm. A device is provided for sensing the direction of movement of microfilm. The present machine enables the rapid selection of one or more frames on a roll of microfilm and the rapid reproduction of a variable, preselectable number of copies of a variable, preselectable number of consecutive frames on a roll of microfilm.

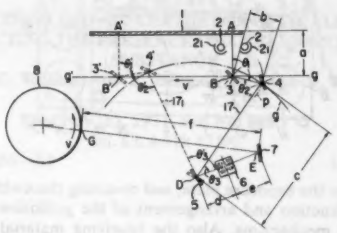
3,740,137

PHOTOCOPYING APPARATUS

Jiro Sato, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 2, 1972, Ser. No. 231,178
Claims priority, application Japan, Mar. 9, 1971, 46/12578
Int. Cl. G03b *27/70*
U.S. Cl. 355—66 **4 Claims**

A copying apparatus comprises an original supporting table provided on top of a housing. A first mirror is disposed with respect to an original placed on the supporting table. A second and a third mirro and a lens are provided for directing the original image reflected from the first mirror to a moving photosensitive medium. The second mirror is movable with the first mirror as the latter is moved parallel to the surface of the original to scan such surface while at least three mirrors including the first and second mirrors are rotated about their own axes with the optical paths between their respective points of reflection being maintained at predetermined lengths by a linkage. Thus, the original image may be projected for copying on the moving photosensitive medium through the lens.

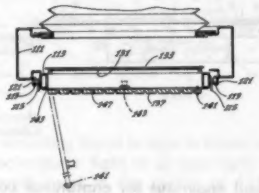


3,740,138

PROCESS CAMERA ALIGNMENT AND EXPOSURE SYSTEM

Delbert T. Blatherwick, Arcadia, Calif., assignor to Acti Products, Inc., Arcadia, Calif.

Filed Mar. 8, 1971, Ser. No. 121,780
Int. Cl. G03b *27/60*
U.S. Cl. 355—73 **11 Claims**



A process camera having a tiltable frame upon one face of which a ground glass viewing assembly is mounted and upon the opposite face of which a vacuum platen is mounted. The tilt of the frame is controlled by a pair of arms acting against a set of bearing guides so that either the ground glass or vacuum platen may be selectively positioned at the camera optical system image plane.

3,740,139

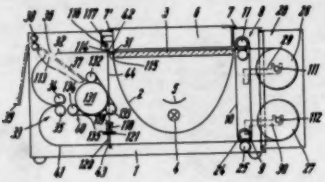
COPYING APPARATUS

Walter Limberger, 2000 Hamburg Poppenbuttel, Alte, Germany

Filed Dec. 8, 1971, Ser. No. 205,965
Claims priority, application Germany, Dec. 8, 1970, P 20 60 276.0
Int. Cl. G03b *27/30*
U.S. Cl. 355—100 **8 Claims**

An improved copying apparatus, operating with a transfer and a receiving material, which are brought in contact with each other, wherein one material, and preferably the transfer material, is stored as a band on a reel, and a cutting device is mounted in the apparatus, and wherein, viewed in the direction of processing, a developing section is arranged

downstream of the exposure section, and the band-shaped transfer material is pulled over an exposure plate and is combined with the receiving material upstream or in front of the exposure section. More particularly, the invention relates to a copying apparatus with a vertically movable contact pressure



cover over the exposure plate, and co-acting therewith, and to the construction and arrangement of the guillotine and the transport mechanisms. Also the receiving material may be stored in the form of sheets in a stack. In particular, the invention also aims at providing a copier in compact form.

3,740,140

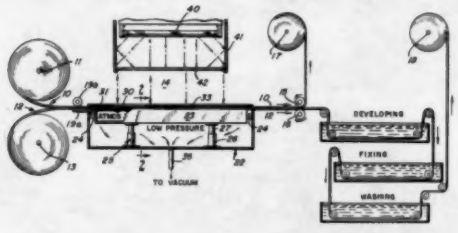
CONTACT PRINTING ON A MOVING LAYER OF LIGHT-SENSITIVE MATERIAL

Margery S. Wolf, Evanston, and Robert Belspel, Skokie, both of Ill., assignors to Extek, Inc., Van Nuys, Calif.

Continuation of Ser. No. 501,029, Oct. 22, 1965, abandoned. This application Aug. 18, 1969, Ser. No. 852,971

Int. Cl. G03b 27/20

U.S. Cl. 355—91 **8 Claims**



A method and apparatus for continuous contact printing from a moving master strip onto a moving duplicate strip of light-sensitive material. A vacuum is applied to the inner or facing surfaces of the master and duplicate strips to keep them in register with each other by withdrawing air from the space between them. Air is so withdrawn either in an entrance region before the longitudinally moving strips come into close proximity with each other, or in an exit region beyond which the moving strips begin to diverge from each other. At least some of the air that is withdrawn from the space between the strips is caused to leave that space along a path generally parallel to the direction of strip movement. The vacuum may be applied through a perforated wedge which guides the strips into close proximity with each other.

3,740,141

TIMING AND MEASURING METHODS AND MEANS FOR LASER DISTANCE MEASUREMENTS

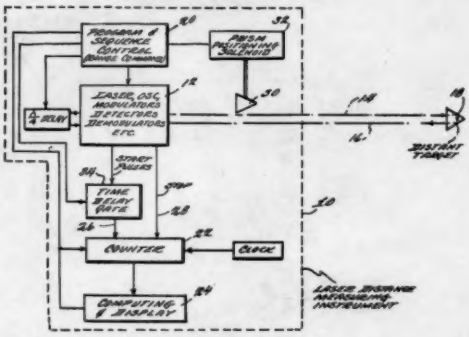
John H. DeWitt, Jr., Nashville, Tenn., assignor to Laser Systems & Electronics, Inc., Tullahoma, Tenn.

Filed Sept. 20, 1971, Ser. No. 181,756

Int. Cl. G01c 3/08

U.S. Cl. 356—5 **4 Claims**

An improved laser distance measuring apparatus of the type that automatically calculates distance to a remote reflection target based upon a measured phase difference between a modulated transmitted laser beam and a reflected return beam from the remote target. The improved apparatus incorporates means for insuring that phase measurements for the return beam are made only when the amplitude of the demodulated return signal is within predetermined limits thereby insuring a desired degree of accuracy for the resulting phase measurement. Furthermore, rather than performing an absolute phase difference measurement, better overall accuracy is obtained by calculating a relative phase difference corresponding to the difference between external and internal reflected beam path distances. Since reflected laser beam components usually exhibit rather severe scintillations due to rapidly changing atmospheric conditions over the beam path length, means are disclosed for insuring that successive phase difference measurements are taken from different packets or bunches of reflections thus insuring that an average of several such measurements is not taken from only a single packet and hence insuring that the resultant average measurement more accurately represents the true distance to the remote target site. In addition, added electrical phase shift means are switched into



operation for substantially one-half of the predetermined number of distance measurements on the most critical phase measurements to substantially cancel nonlinearities inherent in such measurements due to corresponding nonlinearities in the demodulated return signals having a significant harmonic content therein. Furthermore, when the detectable phase difference measurement is less than a predetermined limit, there is a possibility of phase "jitter" causing a counter "stop" signal to occur before the counter "start" signal thereby resulting in erratic counter operation and correspondingly erroneous phase measurement. Accordingly, means are provided for detecting such an "overlap" condition and for automatically accepting the second instead of the first available "stop" counter signal whenever such overlap conditions occur thereby introducing an additional 180° phase difference which is then compensated by complementing the counter in compensation for this fixed added phase difference. The net result is stable counter operation and the elimination of completely erroneous phase difference measurements due to phase jitter.

3,740,142

APPARATUS FOR DISCRIMINATING AND/OR IDENTIFYING JEWELS

Yoshihiko Takubo, Tokyo, Japan, assignor to Fumio Suruki, and Yoshihiko Takubo, both of Tokyo, Japan

Filed June 16, 1970, Ser. No. 46,724

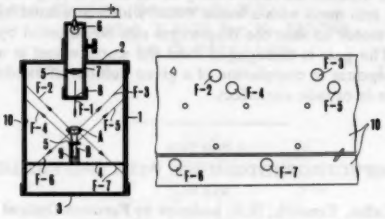
Claims priority, application Japan, Aug. 24, 1969, 44/80406

Int. Cl. G01n 21/00

U.S. Cl. 356—30 **6 Claims**

A novel method for testing materials such as jewels having optical properties such as transparency, reflection, and refraction, in commercial basis, and an apparatus for practicing the method are proposed. The apparatus comprises an enclosure forming a dark room in which the material such as a jewel is tested, means for holding and positioning the material at a selected position inside of the dark room, a beam of elec-

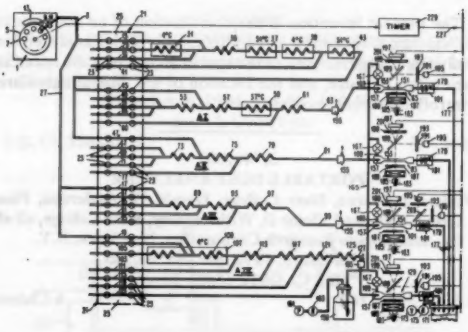
tromagnetic radiation such as light is directed onto the material preferably from the culet side of the material, and a photographic material, preferably placed on the crown side thereof, for recording an image of the electromagnetic radiation distribution of the beam passed through on the material.



3,740,143
AUTOMATIC APPARATUS FOR DETERMINING THE PERCENTAGE POPULATION OF PARTICULATES IN A MEDIUM

Warren Groner, Whitestone; Jacob Kusnetz, Tarrytown, and Alexander M. Saunders, Bedford Village, all of N.Y., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Oct. 30, 1970, Ser. No. 85,353
Int. Cl. G01n *33/16*; G01j *3/46*
U.S. Cl. 356—39 **21 Claims**

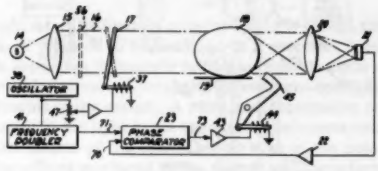


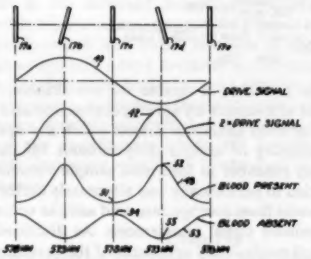
New and improved automatic method and apparatus for differentiating and determining the respective populations of specific particulates in a medium, for example, leukocytes in a whole blood sample comprises means for treating a number of phased quotient streams, each containing a portion of such blood sample, so as to stain either a specific type or a specific class of leukocytes, and passing each quotient stream through a corresponding viewing chamber. The number of stained leukocytes to the number of both stained and unstained leukocytes in each sample portion passing through the corresponding viewing chamber are counted concurrently by photometric means, the ratio of such numbers indicating the population of such specific leukocytes or such specific class of leukocytes in the corresponding sample portion. Preferably, the counting of both stained and unstained leukocytes in the sample portions in the different quotient streams are counted to a same predetermined reference, whereby the respective populations of the specific types or specific classes of leukocytes are directly related and recorded in correlated fashion, and any variations in either the flow rate or the volume of the sample portions in the different quotient streams are only incidental. Also, when particular leukocytes of a same quotient stream are stained and counted as a class, comparison-type logical operations determine the respective populations of the individual leukocytes in such class.

3,740,144
METHOD AND APPARATUS FOR OPTICALLY DETECTING THE PRESENCE OF AN ELEMENT IN A SUBSTANCE

Winston G. Walker, 909 E. Balsam Ave., Apt. D, Anaheim, Calif.

Filed Nov. 22, 1971, Ser. No. 200,775
Int. Cl. A01k *43/00*
U.S. Cl. 356—53 **13 Claims**





A system for detecting blood in eggs in which a beam of substantially monochromatic light or at least light within a very narrow wavelength band in the region of 578 nanometers (nm) is passed through an egg to be tested. The band is continually shifted in wavelength a number of times per second between substantially the shortest and the mid-length wavelengths of the broader blood absorption band, i.e. 578 to 573 nm. In a preferred embodiment, this is effected by a Fabry-Perot type interference filter placed in a light beam and oscillated about an axis by an electromagnetic device. A photoelectric device senses the light transmitted by the egg and the output signal derived therefrom is compared with an oscillating signal transmitted in time with the oscillation of the filter. If one phase relation exists between such signals, the egg is rejected as having blood present therein and if an opposite phase relation exists, the egg is retained as clear.

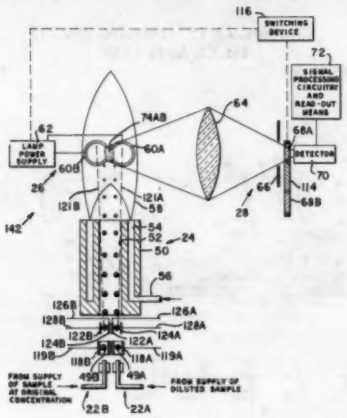
3,740,145
METHOD AND APPARATUS FOR SAMPLE ANALYSIS BY ATOMIC SPECTROSCOPY

Douglas G. Mitchell, Tarrytown, N.Y., assignor to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Sept. 14, 1970, Ser. No. 71,774
Int. Cl. G01j *3/00*
U.S. Cl. 356—87 **19 Claims**

New and improved method and apparatus for the analysis of samples by atomic spectroscopy are provided and comprise sample atom production means taking the form of body means having a generally central sample chamber extending

generally longitudinally therethrough, and heating means for heating said chamber and adjacent areas to convert said sample to atoms. Sample stream generation means in the nature of drop generator means are operably associated with said body means at the lower extremity thereof and are effective to generate a stream of sample drops of substantially uniform size for upward passage through said body chamber to result in a formation of a concentrated atom cloud or sample volume of the sample atoms of interest above said body means. Means are provided to modulate the formation of said sample volume by said sample drop stream to provide for more accurate readout of the sample atom concentration of interest.



Means are also provided to enable the simultaneous multielement analysis of a sample by atom spectroscopy and comprise a plurality of drop generator means which are operable to generate a plurality of sample drop streams for passage through said body chamber to form said sample volume, and means are provided to periodically and alternately deflect said sample drop streams from passage into said sample volume to substantially eliminate signal interference. As disclosed, the new and improved method and apparatus of the invention are particularly adaptable for use in automatically operable sample supply, treatment and analysis means which are operable to automatically analyze a series stream of a large plurality of different samples on a continuous flow basis.

3,740,146

OPERATING MEANS FOR USE IN FADING MECHANISMS OF MOTION PICTURE CAMERAS

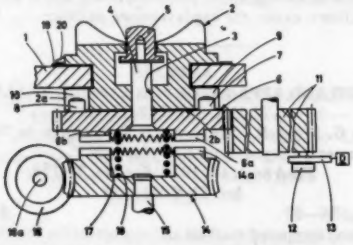
Theo Wilharm, Hebsack, Post Geradstetten, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart, Germany

Filed Feb. 23, 1972, Ser. No. 228,657

Claims priority, application Germany, Mar. 2, 1971, P 21 09 739.2

Int. Cl. G03b *21/36*

U.S. Cl. 352—91 **10 Claims**



A fading mechanism for changing the size of the light-admitting aperture which is furnished by the diaphragm of a motion picture camera during the making of exposures with fade-in or fade-out effect has a control ring which is rotatable in a wall of the camera housing and is normally coupled to a gear of the diaphragm adjusting mechanism so that the user of the camera can adjust the diaphragm by rotating the control ring. A button which is movable axially of the control ring can shift the gear into mesh with a worm wheel which is rotated by the camera motor so that the diaphragm can be adjusted by the motor. The gear is disengaged from the worm wheel in automatic response to completion of a given number of exposures with fade-in or fade-out effect.

3,740,147

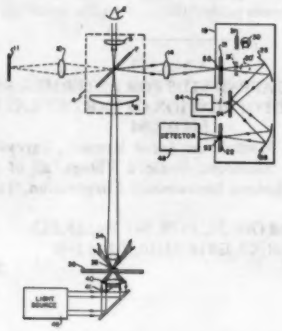
MICROSPECTROPHOTOMETER WITH TWO FIELDS OF VIEW

Eli A. Kallet, Teaneck, N.J., assignor to Farrand Optical Co., Inc., Valhalla, N.Y.

Filed Jan. 10, 1972, Ser. No. 216,533

Int. Cl. G01j *3/42*; G02b *7/00*

U.S. Cl. 356—96 **4 Claims**



The present invention is the combination of an instrument for viewing a specimen in combination with an analyzer for analyzing a targeted area of the specimen wherein the spectral bandwidth, the size, and the location of the targeted area are controlled by a common element.

3,740,148

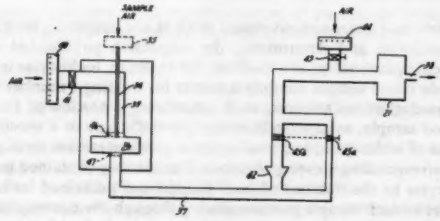
PORTABLE DUST ANALYZER

William J. Moroz, State College; Gerald W. Anderson, Pine Grove Mills, and Victor D. Withstandley, State College, all of Pa., assignors to Research Corporation, New York, N.Y.

Filed Dec. 8, 1970, Ser. No. 96,135

Int. Cl. G01n *15/02, 21/06*

U.S. Cl. 356—102 **6 Claims**

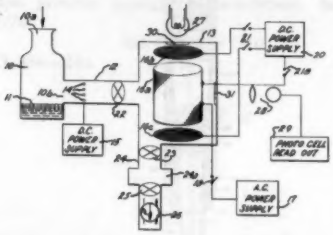


A portable battery powered dust analyzer operating on the principle of light-scattering from individual airborne particles moving past a high intensity light, which is capable of counting and size discriminating air-borne particulate matter over several size ranges while providing immediate readout in which the flow passage system minimizes turbulence and recirculation allowing for small physical dimensions of the device and portability.

3,740,149
METHOD AND APPARATUS FOR MEASURING SIZE DISTRIBUTION OF PARTICLES USING A THREE-DIMENSIONAL ALTERNATING CURRENT ELECTRIC FIELD

Nathan Rey Whetten, Burnt Hills, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 2, 1972, Ser. No. 222,768
Int. Cl. G01n 15/02
U.S. Cl. 356—102 27 Claims

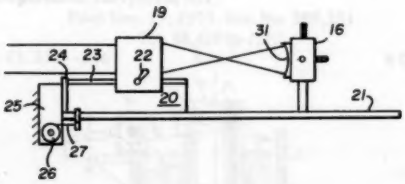


The size distribution of particles including particulate matter in a gas sample is determined by generating a three-dimensional alternating current electric field in an expansion chamber for mass-selective sorting of the particles whereby condensible vapor saturated charged particles in the gas sample which are in a particular range of charge-to-mass ration are trapped within the electric field and the particles outside the range are swept away. An expansion of the gas in the expansion chamber causes condensation of droplets on the trapped particles and a condensation nuclei counter may be used for detecting the number of droplets which corresponds to a like number of the trapped particles in the particular range of charge-to-mass ratio occurring in the gas sample.

3,740,150
SURFACE MEASUREMENT BY INTERFEROMETER

Charles R. Munnerlyn, Fairport, N.Y., assignor to Tropel, Inc., Fairport, N.Y.

Filed Jan. 6, 1971, Ser. No. 104,404
Int. Cl. G01b 9/02
U.S. Cl. 356—109 19 Claims

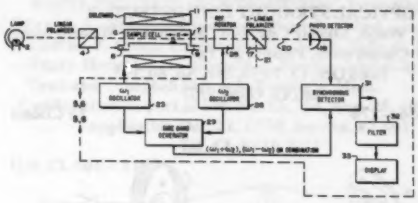


An interferometer measures a test surface arranged in the test arm of the interferometer by using a focusing lens system movable along the test arm. The focusing lens system is adjustable along a slide that is movable along the test arm of the instrument, and the test surface is mounted at a region of maximum coherence function of the test beam. The focusing lens system is adjusted along the slide to focus the test beam on the surface of the test surface. Then by means of gauge blocks removably interposable between the slide and a reference surface and equalling the desired radius of curvature of the test surface, the slide is moved to bring the focus of the test beam to the region of the center of curvature of the test surface to observe interference fringes between light returning from the test surface and a plane wave front reference beam.

3,740,151
ANALYZER EMPLOYING MAGNETO-OPTIC ROTATION

Robert L. Chaney, Cupertino, and Michael A. Kelly, Mountain View, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Aug. 2, 1971, Ser. No. 168,332
Int. Cl. G01n 21/40
U.S. Cl. 356—117 17 Claims

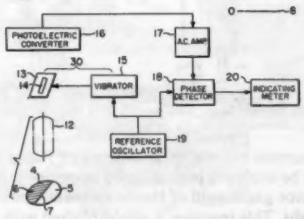


A light beam of linearly polarized light is passed through a sample of material to be analyzed to a detector. A magnetic field is applied to the sample to obtain magneto-optic rotation of the polarization of the light by magneto-optically active constituents of the sample. A reference polarization rotator is positioned in the light beam to impart a reference rotation to the polarization of the light. One or both of the polarization rotation effects produced by the sample and the reference are modulated to produce a sideband modulation signal component in the detected output. The sideband signal component is separated and measured to obtain a signal having an amplitude which is a linear function of the quantity of the magneto-optically active material in the sample under analysis. In a preferred embodiment the reference polarization rotator comprises a second magneto-optic cell containing a reference magneto-optically active material corresponding to one of the constituents within the sample under analysis, whereby increased specificity is obtained in the output measurement.

3,740,152
DEVICE FOR DETECTING THE BOUNDARY BETWEEN DIFFERENT BRIGHTNESS REGIONS OF AN OBJECT

Kiyoshi Iisuka, Kawasaki-shi, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed June 23, 1971, Ser. No. 155,839
Int. Cl. G01b 11/00; G05b 1/00
U.S. Cl. 356—156 9 Claims



A device for automatically determining the position of a boundary between light and dark regions of an object such as an IC mask pattern or the like, the device including an optical system for forming a point or line symmetrical double image, a light beam modulator means for providing a position signal from an image formed through said optical system, a photoelectric converter means for converting a light signal modulated by the light beam modulator means into an electrical signal, and a phase detector means for converting the electrical signal from the photoelectric converter into a DC signal,

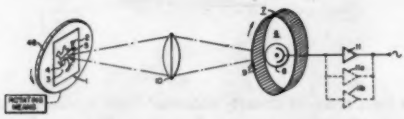
whereby the position of the boundary may be determined in a highly accurate and stable manner irrespective of any relatively great or small brightness and difference between the light and dark regions of the object, and without any adverse effect resulting from such variable factors as the variation in brightness of the image, the aging of the detector element and operator errors.

3,740,153

OPTICAL STRAIGHT LINE DETECTOR

Wilbur R. Wood, Ellicott City, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 13, 1970, Ser. No. 80,393
Int. Cl. G06k 9/02
U.S. Cl. 356—170 **16 Claims**



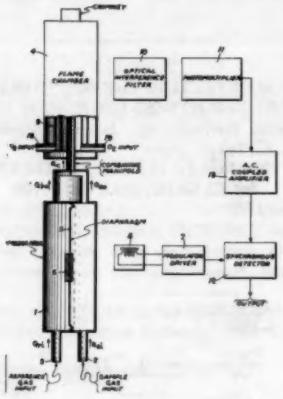
A simple means of detecting a straight line or edge using non-coherent optical techniques. An object is imaged onto a rotating film loop by a lens. The film loop has a number of parallel, equally spaced bars. When a straight line is detected which is parallel to the bars on the rotating film, its presence is indicated by a large signal being emitted by a photodetector.

3,740,154

MODULATED COMPOSITION FLAME PHOTOMETER

Joseph A. Green, Adelphi, Md., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Oct. 28, 1971, Ser. No. 193,288
Int. Cl. G01j 3/48
U.S. Cl. 356—187 **3 Claims**



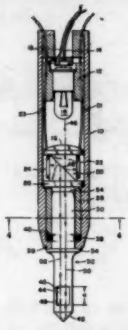
This invention relates to an improved flame photometer. The gas to be analyzed is modulated in composition by means of a reference gas devoid of the component whose concentration is sought. This reaction is accomplished with a modulator cavity partitioned by a flexible membrane having a ferrite magnet or other magnetic material attached thereto. An electromagnet imparts a sinusoidal displacement to said ferrite magnet producing peak tidal flows of said sample gas and said reference gas alternately to a burner. An optical filter passes specific spectral components of the resultant luminosity to a photomultiplier which converts the light flux to an electrical signal. This resultant signal is electrically correlated with the modulating drive signal to obtain the amplitude of the periodic component of flame intensity occurring at the modulating frequency.

3,740,155

COLORIMETER PROBE

Peter H. Keller, and Roger D. Foskett, Waltham, Mass., assignors to Syntex Corporation, Waltham, Mass.

Continuation-in-part of Ser. No. 842,101, July 16, 1969, abandoned. This application Apr. 1, 1971, Ser. No. 130,098
Int. Cl. G01j 3/46; G01n 1/10; G01j 3/48
U.S. Cl. 356—180 **10 Claims**



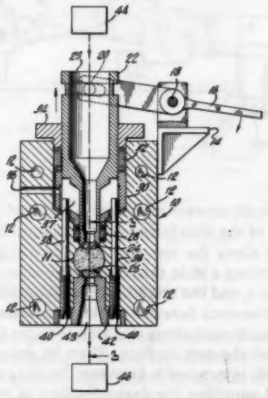
A colorimeter probe includes a removable, disposable probe tip with a chamber formed at the outer end of the tip to receive the solution under investigation. In one embodiment of the invention, the probe is in the form of an elongated housing having a light source remote from the probe tip and directs light along a first path toward a reference photocell and simultaneously along another path which extends through the solution chamber and then to a signal cell. In another embodiment of the invention, the light source and sensors are remote from the probe and are optically connected to the probe by means of optical fibers.

3,740,156

PHOTOMETRIC ANALYZER SAMPLING CELL

John J. Heigl, Short Hills, and Oliver G. Lewis, Westfield, both of N.J., assignors to Esso Research and Engineering Company, Linden, N.J.

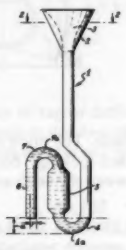
Filed Aug. 11, 1971, Ser. No. 170,696
Int. Cl. G01n 1/20
U.S. Cl. 356—204 **8 Claims**



A movable window which coacts with a fixed window in an on-stream photometric analyzer for trapping a sample of flow-

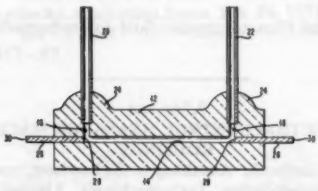
ing fluid for analysis without interrupting the flow of the main stream. The two windows comprise a sample cell when in close proximity to one another. After the analysis, the movable window is retracted so that the sample is released and residues purged by the main stream before the process is repeated.

3,740,157
FLOW CUVETTE
Vladimir Kasparek, CH 4336 Kaisten, Switzerland
Filed July 6, 1971, Ser. No. 159,866
Claims priority, application Switzerland, July 6, 1970, 10221/70
Int. Cl. G01n 1/10
U.S. Cl. 356—246 **17 Claims**



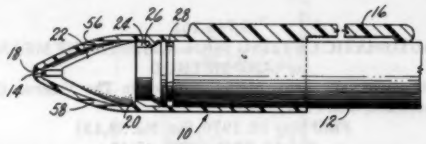
A flow cuvette which is designed for use with photometric, fluorometric, turbidimetric, and nephelometric instruments. The cuvette holds the sample of liquid which is to be analyzed. A sample chamber is attached at the bottom to an upwardly directed U-shaped feed tube and at the top to a downwardly directed U-shaped drain tube. The feed tube extends above the highest edge of the drain tube and the lower end of the drain tube is positioned at a point above the lowest edge of the feed tube. A funnel is attached to the end of the drain tube to aid in the introduction of the sample. A means can be included in the funnel to prevent eddying or vortexing of the liquid sample and thus prevent entrainment of air bubbles in the sample.

3,740,158
FLOW CELL
S. Lawrence Bellinger, Lake Luzerne, N.Y., and John C. Parker, Ramsey, N.J., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.
Filed Dec. 17, 1971, Ser. No. 209,231
Int. Cl. G01n 1/20
U.S. Cl. 356—246 **6 Claims**



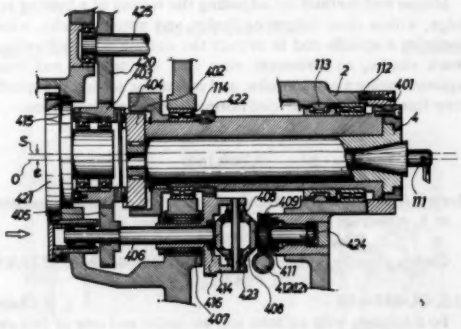
A flow cell having a nonmetallic elongated open-ended tubular body providing a longitudinal sight passageway in a portion of the light path between a light source and a light detector for colorimetric or densitometric analysis of a liquid sample within the passageway, the body having fluid inlet and outlet ports, one through the side-wall structure of the body adjacent each end of the latter. Light-transmitting fluid seals are provided closing the respective ends of the body, at least one of which seals has an interface with the liquid sample in the sight passageway and is structured of a material having a higher refractive index than the tubular body, so as to provide a light pipe for increasing the transmission of light through the flow cell sight passageway to the light detector.

3,740,159
POINT PROTECTORS FOR WRITING IMPLEMENTS
Edward A. Smagala-Romanoff, Beverly, Mass., assignor to Charles F. Coles; Christopher M. Weld; Sally C. Leighton; Henry Hornblower; Michael J. Perrin; John Gikas; James Tenn and Campbell Steward, Topsfield, Mass.
Continuation-in-part of Ser. No. 66,764, Aug. 25, 1970. This application Oct. 21, 1970, Ser. No. 82,591
Int. Cl. B43k 7/12
U.S. Cl. 401—117 **1 Claim**



There is disclosed in the present application a point protector for a writing implement such as a ball point pen, which is moldable with internal retaining and indexing projections, The molding operation and the mold for the production of the protector are simplified by providing openings in alignment with the projections through which stationary core rods are introduced into the mold cavity.

3,740,160
NUMERICAL CONTROLLED BORING MACHINE
Akira Kimura, Yokohama, and Masaharu Tajima, Kawasaki, both of Japan, assignors to Ikegai Tekko Kabushiki Kaisha, Tokyo, Japan
Filed May 21, 1971, Ser. No. 145,759
Claims priority, application Japan, May 26, 1970, 45/45045
Int. Cl. B23b 49/00
U.S. Cl. 408—2 **3 Claims**



A numerical controlled machine tool adapted to process a bore in a work-piece by the use of a single point cutting tool supported in the main spindle of the machine tool in which a main spindle assembly comprising a main spindle sleeve having an axially extending eccentric opening and said main spindle received in said eccentric opening and having a tool mounting portion. The diameter of a bore to be processed can be adjusted by varying the eccentricity of the tool mounting

portion of the main spindle with respect to the main spindle sleeve and the eccentricity of the tool mounting portion with respect to the sleeve can be varied in accordance with a control signal from a numerical control device. A numerical control shaft for measuring the diameter of a bore processed is provided independently of numerical control shafts for positioning and the numerical control shaft is adapted to measure the bore diameter by moving a measuring element in accordance with a bore diameter predetermined by a numerical control program and in order to compensate for any difference between the predetermined bore diameter and the measured bore diameter, prior to the following finish boring operation, the eccentricity of the tool mounting portion of the main spindle with respect to the sleeve is adjusted by the measured deviation amount of bore diameter so that a desired bore diameter can be obtained in the finish boring operation.

3,740,161

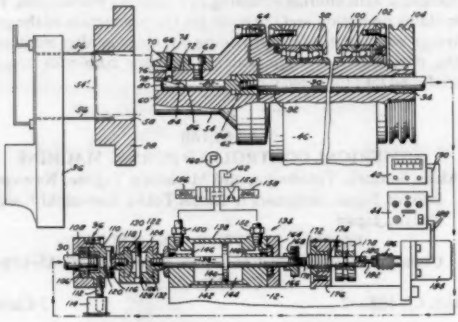
AUTOMATIC CUTTING TOOL ADJUSTMENT MEANS AND METHOD

Victor Milewski, Troy, Mich., assignor to The Valeron Corporation, Oak Park, Mich.

Filed May 18, 1970, Ser. No. 38,131

Int. Cl. B23b *49/00, 47/18*

U.S. Cl. 408—158 **3 Claims**



Means and method for adjusting the setting of a cutting tool edge, within close tolerance limits, and automatically, which includes a spindle rod to retract the cutting edge following a work stroke, an abutment stop that the spindle rod bears against during a work stroke, and means for setting the spindle stop free from the axial load normally imposed thereupon.

3,740,162

CENTRIFUGAL PUMP

Jorma Aarne Kullervo Tuomaala, Karhula, Finland, assignor to A. Ahlstrom Osakeyhtio, Noormarkku, Finland

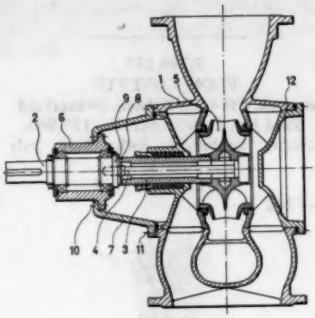
Filed Nov. 23, 1970, Ser. No. 91,913

Claims priority, application Finland, Dec. 4, 1969, 3523/69

Int. Cl. F04d *1/00, 17/08*

U.S. Cl. 415—98 **3 Claims**

To a housing with an inlet and an outlet and one or two end walls there is detachably attached a support for a bearing box to mount a shaft in bearings outside the housing. A bushing is projecting through one end wall of the housing and supporting an impeller at the end inside the housing. The other end is in endwise friction contact with the shaft which has a threaded hole coaxially in this end and a bore communicating with a circumferential groove in the bushing which groove is limited by the shaft end and the bushing. The bushing is mounted in bearings attached to the housing end wall and the shaft, bushing an impeller are connected to a rigid coaxial unit with a screw running through the bushing, the head of the screw being pressed against the impeller and the opposite end being threaded to provide a thread joint the shaft having a correspondingly threaded hole. The pitch of the thread is so great that the joint is not self-locking, but is easily opened by pressing a lubricant between the shaft and the bushing through the bore and the recess.



3,740,163

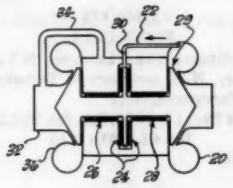
FLUID BEARING INERTIAL FILTER

Roy L. Schinnerer, Long Beach; Alexander Silver, Tarzana; Leonard T. Sladek, and Morris A. Barnett, both of Palos Verdes Estates, all of Calif., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Feb. 25, 1971, Ser. No. 118,741

Int. Cl. F04d *29/04;* **F04b** *17/00*

U.S. Cl. 415—111 **10 Claims**



An inertial filter to provide fluid for turbomachine fluid bearings.

3,740,164

DEFLECTION CONTROL MEANS FOR MACHINE HOUSINGS

Ferdinand Zerlauth, Andelfingen, Switzerland, assignor to Brown Boveri-Sulzer Turbomachinery, Limited, Zurich, Switzerland

Filed Feb. 18, 1972, Ser. No. 227,431

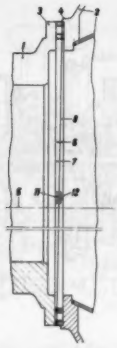
Claims priority, application Switzerland, Mar. 17, 1971, 4417/71

Int. Cl. F01d *25/28;* **F02c** *7/20*

U.S. Cl. 415—134 **4 Claims**

The housing is divided at an intermediate point and a ring having two mating annular parts is positioned between the divided housing parts. The mating parts of the ring are rotatable

about a common axis and are of varying thickness so that relative rotation of the mating parts causes an increase or



decrease in the amount of sag or deflection of the housing at that point. The difference in deadweight sag between the rotor and the housing can thus be held to a minimum.

3,740,165

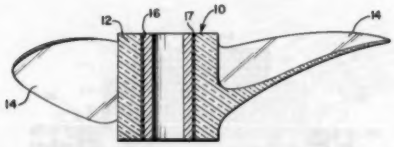
MARINE PROPELLER

Raul Rodriquez, 625 Jackson Avenue, Bronx, N.Y.

Filed June 9, 1971, Ser. No. 151,383

Int. Cl. B63h *1/14*

U.S. Cl. 416—241 **1 Claim**



A water propeller for driving water craft such as an outboard motor boat and having the hub and propeller blades made as an integral unit from a rigid transparent material such as glass to reduce noise when propelling the boat through water.

3,740,166

SLURRY PUMP OF OIL-DIAPHRAGM TYPE

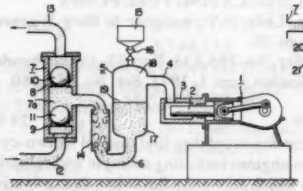
Kazunori Seki, and Toshio Kazama, both of Nagaoka, Japan, assignors to Tamagawa Kikai Kinzoku Kabushiki Kaisha, Tokyo-to, Japan

Filed Apr. 19, 1971, Ser. No. 134,946

Claims priority, application Japan, Jan. 28, 1971, 46/2600

Int. Cl. F04f *11/00*; F04b *21/00, 15/02*

U.S. Cl. 417—92 **2 Claims**



In a riser portion of the slurry connecting pipe between the valve box and the diaphragm chamber of an oil-diaphragm slurry pump having a plunger pump, there is installed a pipe part of large cross section having an interior of a volume greater than the suction displacement of the plunger pump and of a configuration such as to provide abruptly changing cross sectional area with respect to slurry flow therein, whereby turbulent flow, eddy flow or vortices are continually formed in the slurry during pump operation thereby to prevent settling of solid particles.

3,740,167

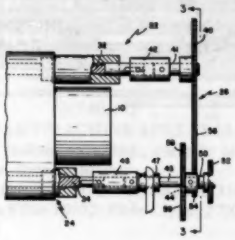
HYDRAULIC SYSTEM

David Eugene Albrecht, Blue Bell, Pa., assignor to David E. Albrecht, Blue Bell and Raymond H. Jensen, Plymouth Meeting, Pa.

Filed June 23, 1970, Ser. No. 49,134

Int. Cl. F01b *49/00*

U.S. Cl. 417—218 **5 Claims**



A hydraulic system employing a pressure compensated variable displacement pump in which the pressure and volume control of the pump are interconnected for simultaneous adjustment within a range in a predetermined relationship.

3,740,168

TUBULAR ENCASED TURBO-MACHINE WITH AXIALLY SPACED SEALING RINGS FOR COMPARTMENTIZING THE COMPRESSOR AND TURBINE COMPONENTS

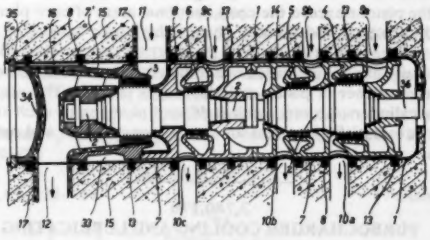
Hermann Hug, Klingnau; Paul Moser, Dietlikon; Hans Schwarz, Nussbaumen, and Max Zimmermann, Untersiggenthal, all of Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

Filed Nov. 12, 1971, Ser. No. 198,383

Claims priority, application Switzerland, Nov. 18, 1970, 17155/70

Int. Cl. F04b *17/00*

U.S. Cl. 417—360 **6 Claims**



A tubular encased turbo-machine structure comprises a tubular concrete reinforced casing in which a turbo-machine group is inserted subsequent to its assembly. The various machines of the group such as the compressors and turbine are compartmentized within the casing by means of radially displaceable segmented sealing rings located within the casing, these rings being initially in a retracted state with their inner peripheries essentially flush with the inner surface of the

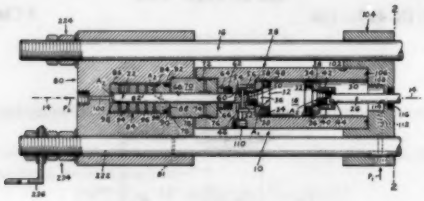
casing to facilitate installation of the assembled turbomachine group in the casing, and the rings thereafter being displaced radially inward so as to establish a sealing contact with the peripheries of the guide blade carrier components of the several machines and thus compartmentize the interior of the tube so that the several machines of the group are separated each from the other.

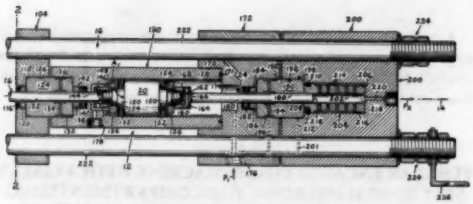
3,740,169

HIGH PRESSURE GENERATING DEVICE

Eduard L. J. Papen, Sint-Niklaas, Belgium, assignor to National Forge Company, Irvine, Pa.

Filed Oct. 7, 1970, Ser. No. 78,738
Int. Cl. F04b *35/00*
U.S. Cl. 417—397 **9 Claims**





A high pressure generating device comprising two or more double acting hydraulic cylinders mounted along a single longitudinal axis and having pistons within each cylinder which are moved toward a select end of the device by a fluid at low pressure from an external source. The piston closest to the select end of the device drives a plunger slidably mounted in a fluid filled cavity in a high pressure end body. A fluid output passage communicates between the cavity and the exterior of the device. Push rods between each pair of adjacent pistons cumulatively transmit the forces exerted on the pistons by the external fluid source to the plunger. The cross-sectional areas of the pistons exceed the cross-sectional areas of each plunger and each push rod thereby giving a hydraulic advantage and intensifying the pressure from the external source. The ratio of intensification is increased in additive fashion with an increase in the number of piston-cylinder stages utilized. The respective cylinders, pistons, push rods, and plungers of each stage are substantially identical for ease of construction and operation.

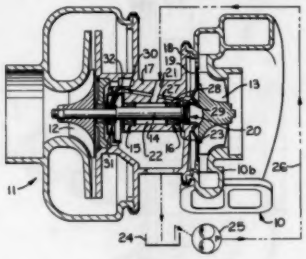
3,740,170

TURBOCHARGER COOLING AND LUBRICATING SYSTEM

Elbert H. Miller, East Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 23, 1971, Ser. No. 111,016
Int. Cl. F04b *17/00*
U.S. Cl. 417—407 **2 Claims**

A turbocharger comprises a turbine wheel and compressor impeller secured to a common shaft rotatably mounted in spaced bearings. A primary passage means communicates oil between the bearings for lubrication purposes. A secondary passage means connects with the primary passage means to bypass some oil around the bearing positioned adjacent to the turbine wheel. The lubricating oil from the two passage means combine adjacent to the turbine wheel to form a substantial heat barrier thereat to prevent undue heat concentrations and carbon buildup.

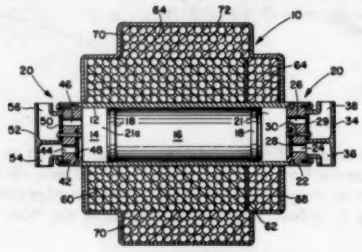


3,740,171

ELECTROMAGNETIC PUMP OR MOTOR DEVICE

Robert A. Farkos, 63 York Drive, Hudson, Ohio

Filed Aug. 10, 1971, Ser. No. 170,448
Int. Cl. F04b *17/04*; **H02k** *33/12*
U.S. Cl. 417—418 **5 Claims**



An electromagnetic plunger-cylinder device including two alternately energized solenoid coils wound about the cylinder to reciprocate the plunger therewithin, the inner end of one coil being wrapped around the inner end of the other coil, thereby to control the stroke or air gap of the plunger.

3,740,172

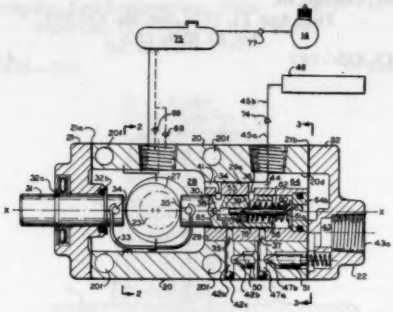
RECIPROCATING FUEL PUMPS

Otmar M. Ulbing, Lisle, N.Y., assignor to Borg-Warner Corporation, Chicago, Ill.

Continuation of Ser. No. 786,233, Dec. 23, 1968, abandoned. This application June 1, 1971, Ser. No. 153,460
Int. Cl. F04b *7/04*
U.S. Cl. 417—469 **24 Claims**

Improved system for supplying fuel and oil to two-cycle internal combustion engines including a simple and reliable fuel-oil injector pump which mixes the fluids in a desired ratio from separate tanks. Means for automatically shutting off fuel flow upon loss of oil are provided. Crankcase scavenging pressure assists oil pumping. The injector pump continuously circulates fuel through the fuel tank to avoid vapor lock. Several ar-

rangements for properly correlating the injector pumping rate with engine air flow are disclosed. An improved injection nozzle utilizing an elastomeric band is disclosed. A system for supplying dual cylinders from the same injector pump is disclosed.

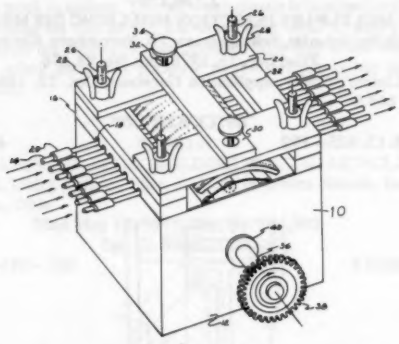


3,740,173

PERISTALTIC PUMP

Samuel Natelson, Chicago, Ill., assignor to Rohe Scientific Corporation, Santa Ana, Calif.

Filed Sept. 16, 1971, Ser. No. 181,052
Int. Cl. F04b 43/08, 43/12, 45/06
U.S. Cl. 417—475 6 Claims



A peristaltic pump wherein a roller drum is made to engage a curved press plate, the roller drum acting on tubing passing between the drum rollers and the press plate, the press plate has at least two longitudinal ridges normal to the drum rollers to prevent said drum rollers from pressing the tubing beyond its elastic limit. A guide and resilient means are applied to the press plate allowing the press plate freedom of movement and permitting the press plate to adjust to the configuration of the tubing. A flexible belt which is spring loaded covers the drum rollers to produce a smooth peristaltic motion on the tubing.

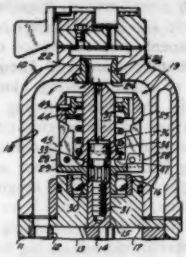
3,740,174

SPEED RESPONSIVE CENTRIFUGAL GOVERNOR

Lester A. Amtsberg, Utica, N.Y., assignor to Chicago Pneumatic Tool Company, New York, N.Y.

Filed July 15, 1971, Ser. No. 162,858
Int. Cl. G05d 13/34
U.S. Cl. 418—43 10 Claims

A speed responsive centrifugal governor controlled valve assembly illustrated as applied to a rotary grinding tool is carried by an air driven motor for regulating driving air flow to the motor accordingly as the speed and load of the motor varies. The valve is movable against the bias of a return spring relative to an axially aligned seat by means of centrifugally actuable weights. The valve is pneumatically balanced so that the force of the weights is expended solely in overcoming the bias of the return spring when moving the valve. The valve is subject to minimal contact with surrounding components and subject to circulating inlet air so as to be self-cleaning. A ring is adapted to be selectively indexed to adjust the tension of the spring.

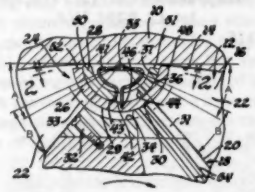


3,740,175

ROTARY MACHINE APEX SEAL

Nathaniel B. Kell, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 29, 1972, Ser. No. 230,316
Int. Cl. F01c 19/02; F04c 15/00, 27/00
U.S. Cl. 418—113 4 Claims



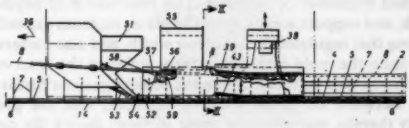
A rotary machine apex seal arrangement having nested semicircular seal members of different diameter with the leading edge of the larger diameter seal member providing a leading seal and the trailing edge of the smaller diameter seal member providing a trailing seal with the machine's internal peripheral wall, both seal members being mounted for relative rotational movement to compensate for wear at the two sealing edges and also being mounted for rocking movement on the rotor to compensate for the contour of the wall.

3,740,176

MACHINE FOR THE MANUFACTURE OF ELONGATE CONCRETE BUILDING BLOCKS

Sven Melker Nilsson, Kallered, Sweden, assignor to Ingenjorsfirman Nilcon AB, Kallered, Sweden

Filed Nov. 3, 1971, Ser. No. 195,200
Claims priority, application Sweden, Dec. 15, 1970, 16596/70
Int. Cl. B29d 7/12
U.S. Cl. 425—64 7 Claims



A slide-mounting machine for moulding preferably elongate concrete elements, wherein the mould bottom consists of a

flat bed over which at least one container holding concrete mixture is adapted to travel and the mould sides consist of two forming surfaces, one being formed by a vertically positioned feeder band being rolled out in synchrony with the speed of advancement of the container, and the opposite forming surface being formed by a wall moving together with said container and vibrating in the lateral direction to compact the concrete mixture dispensed in the space or mould proper formed by said two moulding surfaces. The invention also relates to a method of manufacturing elongate objects of concrete while using the slide-moulding technique, said method being performed by discharging concrete from the one or several continuously advancing containers down onto the flat bed forming the mould bottom and vibrating the concrete to form a layer having parallel longitudinal edges and a smooth upper surface, wherein said layer is being formed between the feeder band and the forming wall positioned laterally relatively thereto and advancing together with said container, and by compacting said concrete being discharged between said band and said shaping wall.

3,740,177

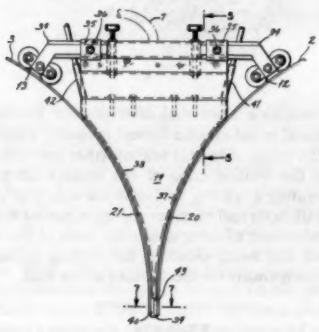
INLET RESERVOIR FOR CONTINUOUS POLYMER CASTING MACHINE

Michael T. Hoyt, College Point, N.Y.; Bernhard T. Junker, Raleigh, N.C.; Ross M. Hedrick, St. Louis, and Terry G. Breeding, University City, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 755,664, Aug. 27, 1968, Pat. No. 3,708,566. This application Oct. 12, 1970, Ser. No. 80,225

Int. Cl. B29d 7/14

U.S. Cl. 425—115 **17 Claims**



An inlet reservoir for use in conjunction with a continuous polymer casting machine which forms an endless sheet or film of a polymeric material within a cavity developed between a pair of mold forming surfaces; said reservoir including a pair of side plates that are designed to conform to the shape of the proximate mold forming surfaces, and including movable sealing gaskets that dispose intermediate the edges of said plates and the mold forming surfaces to preclude seepage of the retained monomer or polymer. This reservoir is of adjustable width, and support means upon the plates includes expandable bracing that regulates the reservoir width, and also casters that ride upon the mold forming surfaces stabilize the reservoir in relation to said surfaces. Since the sealing gaskets further extend between the mold forming surfaces, and are pressed firmly therein, movement of these surfaces during the casting operation also sustains movement of the gaskets, while the gaskets simultaneously act as edge-sealing means for the mold cavity thereby preventing leakage of the polymer while being cast.

3,740,178

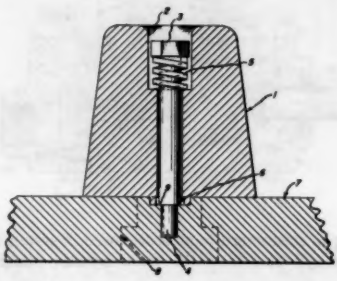
PLUG ASSEMBLY FOR THERMOFORMING

Peter C. Neil, Fullerton, Calif., assignor to Standard Oil Company, Chicago, Ill.

Filed Apr. 21, 1971, Ser. No. 135,853

Int. Cl. B29c 1/16

U.S. Cl. 425—182 **4 Claims**



A novel plug assembly for use in thermoforming of plastics comprises a combination of a plug body made of a relatively highly heat-conductive material fitted with holding means passing therethrough made from a high tensile strength material, said holding means and said plug body being spaced from one another by a self-adjusting spacing member providing compensation for thermal expansion and contraction.

3,740,179

MULTI-PART INJECTION MOULDING DIE MEANS

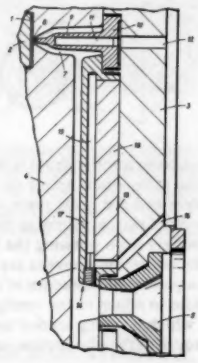
Wilhelm Schmidt, Schlossstrasse 58, Nuremberg, Germany

Filed Dec. 15, 1970, Ser. No. 98,256

Claims priority, application Germany, Dec. 22, 1969, P 19 64 109.9

Int. Cl. B29f 1/08

U.S. Cl. 425—192 **4 Claims**



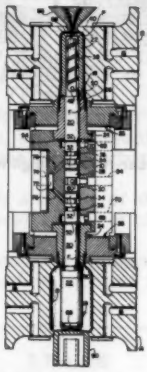
Injection moulding apparatus having injection means and one or more runners for the distribution of moulding material in plastic form to one or more mould cavities. A temperature controlling device for maintaining the plastic flow condition of the moulding material is located in the runner and comprises a hollow member substantially coextensive therewith. Such member is detachably securable to an interior side wall, preferably in a recess, of the runner and includes an occludable opening accessible exteriorly of the apparatus for the ready introduction of heating or cooling media such as fluids or electric heating elements as desired.

3,740,180

CORE PIN FOR PLASTIC INJECTION BLOW MOLDING

Edmund Sidur, Livermore, Calif., assignor to Package Machinery Company, East Longmeadow, Mass.

Filed Oct. 19, 1971, Ser. No. 190,540
Int. Cl. B29d 23/03
U.S. Cl. 425—249 11 Claims



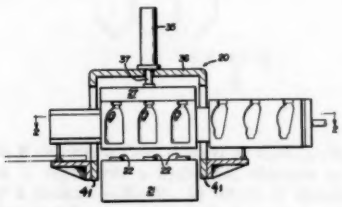
A parison and core pin construction for a plastic injection blow molding machine of the type wherein a rotatable arm supports at least two such pins in diametrically opposed relationship and alternates them between a separable parison mold over the arm and a separable blow mold below the arm. The pins work in unison. That is, when plastic is injected in the parison mold on top of the pin associated with it, that pin thrusts upon and opens the pin opposed to it and in the blow mold to admit air under pressure to the parison in the said blow mold.

3,740,181

APPARATUS FOR BLOW MOLDING PLASTIC ARTICLES

Albert R. Uhlig, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed May 17, 1971, Ser. No. 143,802
Int. Cl. B29d 23/03
U.S. Cl. 425—326 6 Claims



This invention relates to a method and apparatus for blow molding articles, such as handled containers, having injection molded portions integrally formed with blow molded portions. The method includes forming a tubular blowable parison, blowing this parison in a pre-form mold, and then blowing the pre-form to its final shape in a final blow mold. The utilization of the pre-form mold as an intermediate step makes possible the formation of containers of enhanced physical characteristics, the elimination of external flash or waste portions, and the formation of a final article having an injection molded portion integrated with a biaxially oriented blown portion.

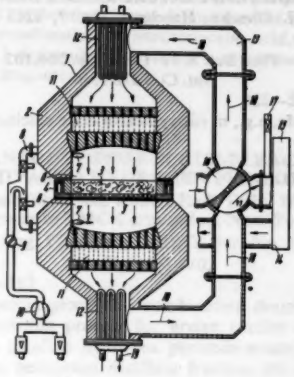
The apparatus of the invention includes the means for forming the parison, the pre-form mold, the final blow mold and the means for correlating the operation of these portions of the apparatus to attain the operation of the overall method.

3,740,182

APPARATUS FOR THE PRODUCTION OF BOUND BODIES OF BULKING CLAY

Joachim Wunning, Warmbronn, Germany, assignor to J. Aichelin, Korntal, Germany

Filed Nov. 30, 1971, Ser. No. 203,378
Claims priority, application Germany, Nov. 30, 1970, P 20 58 789.7
Int. Cl. B29c 1/00; B29f 5/00
U.S. Cl. 425—446 8 Claims



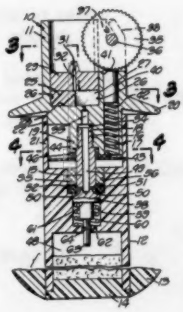
An apparatus for the production of ceramically bound bodies of bulking clay which comprises a housing defining a passage-through chamber, adapted to blow alternately highly heated gas in opposite directions through a heap of debris of a granulate capable of swelling in a form box received in the chamber up to swelling and ceramic binding of the surfaces of the granulate. A gas feeding device and a heat storage are provided. The passage-through chamber includes the heat storage in the direction of the flow of the gas driven alternately back and forth on both sides of the form box. A burner feeding device for a gaseous mixture is arranged which operates controlled and regulated. Chamber sections are disposed between the heating storage and the form box. The chamber sections constitute burner chambers, and a flue gas branch is disposed within the range of the gas feeding device.

3,740,183

LIGHTER WITH DELAYED FLAME SHUTOFF

Rodney S. Piffath, Northridge, and John J. Cole, Beverly Hills, both of Calif., assignors to Butane Match A.G., Zurich, Calif.

Filed Aug. 16, 1971, Ser. No. 171,865
Int. Cl. F23q 1/02
U.S. Cl. 431—276 10 Claims



A lighter using fuel under pressure has a valve for admitting fuel into a metering chamber and has a pressure reducing

regulator interposed between the metering chamber and the flame orifice. The valve is controlled by relative movement between the fuel reservoir member and a head member which carries ignition means. The flame continues to burn after the valve is closed until the fuel in the metering chamber is consumed. A detachable coupling between the members permits the head member to be removed so that the fuel reservoir may be re-charged through said valve.

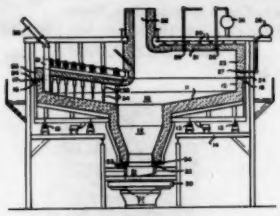
3,740,184

HIGH TEMPERATURE RABBLE DESIGN

Thaddeus J. Oleszko, Hoechster Str. 7, 8263 Burghausen, Germany

Filed Dec. 2, 1971, Ser. No. 204,102
Int. Cl. F27b 9/16
U.S. Cl. 432—235 6 Claims

Rabble life, e.g., in rotary hearth coke calciners, is greatly extended by welding grids, e.g., hexsteel honeycomb onto at least the wear surfaces of the rabbles and filling the



honeycomb in with wear-resistant high temperature insulating cement.

3,740,185

EXHAUST PROCESS FOR THE DYEING OF SYNTHETIC FIBRE MATERIALS

Karl Neufang and Robert Kuth, Cologne, Rutger Neeff, Leverkusen, and Gunter Breidbach, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 19, 1970, Ser. No. 47,867
Claims priority, application Germany, June 28, 1969, P 19 32 828.0
Int. Cl. C09b *1/00, 29/00, 31/00, 51/00;* D06p *1/18, 1/20, 1/68, 1/40*
U.S. Cl. 8—39 15 Claims

Exhaust process for the dyeing of synthetic fibre materials from organic, water-immiscible solvents, characterised by using for the dyeing carboxyl group-containing disperse dyestuffs.

Preferred dyestuffs are those of the metal-containing or metal-free azo dyestuff series or of the anthraquinone series.

The dyeings obtained are distinguished by a substantially good affinity and an improved fastness to sublimation.

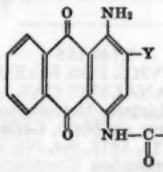
3,740,186

CONTINUOUS DYEING OF SYNTHETIC FIBRES WITH WATER IMMISCIBLE ORGANIC SOLVENTS AND AMINO ANTHRAQUINONES

Volker Hederich and Gunter Gehrke, Cologne, Rutger Neeff, Leverkusen, and Peter Wegner, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Aug. 21, 1970, Ser. No. 66,066
Claims priority, application Germany, Aug. 27, 1969, P 19 43 535.9
Int. Cl. C09b *1/40, 1/42;* D06p *1/20*
U.S. Cl. 8—39 9 Claims

Process for the continuous dyeing of synthetic fibre materials from organic solvents characterised in that the fibre materials are impregnated with dyeing liquors which contain anthraquinone dyestuffs of formula



in which R denotes a C_1–C_{17}-alkyl or C_3–C_{17}-alkenyl radical, and Y represents a hydrogen, chlorine or bromine atom or a radical —X—R_1, in which X denotes oxygen or sulphur and R_1 is a C_1–C_{18}-alkyl, aralkyl, alkoxyalkyl, aralkoxyalkyl or aryloxyalkyl radical or a phenyl radical optionally substituted by C_1–C_8-alkyl, cycloalkyl, aralkyl, C_1–C_5-alkoxy, C_1–C_8-alkylmercapto or C_1–C_6-alkoxycarbonyl groups and/or chlorine atoms, with the proviso that the sum of the carbon atoms present in total in R and Y is at least 4 and at most 35, and that the fibre materials are subsequently subjected to a heat treatment.

The dyeings obtained are distinguished by high dyestuff yield, very good build-up and excellent fastness properties, especially very good fastness to thermofixing, washing, rubbing and light.

3,740,187

PROCESSES FOR BLEACHING TEXTILES

Xavier Kowalski, Creve Coeur, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed June 3, 1971, Ser. No. 149,856
Int. Cl. D06l *3/02*
U.S. Cl. 8—111 5 Claims

Textile fibers which have been de-sized and scoured are bleached with an alkaline aqueous solution containing a peroxy compound and an alkali metal silicate and a "stabilizer" for (1) reducing the decomposition of said peroxy compound and (2) preventing silicate deposition, and which is, for example, a combination of nitrilotriacetic acid, 1-hydroxy ethylidene-1,1-diphosphonic acid, and a magnesium or calcium salt, e.g., magnesium sulfate.

3,740,188

SIMULTANEOUS DESIZE-SCOUR-BLEACH WITH ACTIVATED HYDROGEN PEROXIDE

Leonard Allan Sitver and Robert Emil Yelin, Willingboro, N.J., assignors to FMC Corporation, New York, N.Y.

No Drawing. Filed Aug. 2, 1971, Ser. No. 168,402
Int. Cl. D06l *3/02*
U.S. Cl. 8—111 2 Claims

This invention provides a combination desizing, scouring and bleaching process for greige textiles employing an aqueous alkaline hydrogen peroxide containing a dipersulfate, a petroleum distillate fraction solvent, a stabilizer and a surfactant.

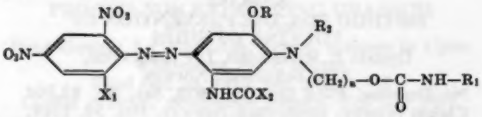
3,740,189

BLACK DYE FORMULATION CONTAINING THREE MONO-AZO DYES

Nagib A. Doss, Loudonville, N.Y., and Roberta Marie Tremain, Easton, Pa., assignors to GAF Corporation, New York, N.Y.

No Drawing. Filed Sept. 17, 1970, Ser. No. 73,235
Int. Cl. C09b *45/48;* D06p *1/02*
U.S. Cl. 8—26 4 Claims

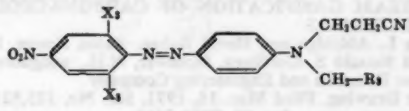
A black dye formulation comprising a blue dye, an orange or yellow brown dye and a red dye component the dye components being present in proportions suitable for obtaining a black dyestuff which is suitable for application to fibers which will be subjected to durable press treatment, the blue dye component being a compound represented by the formula



wherein

X_1 is chlorine, bromine or cyano;
X_2 is lower alkyl or phenyl;
R is lower alkyl;
R_1 is lower alkyl or lower alkenyl;
R_2 is hydrogen, lower alkyl or C_{2-3} alkyl substituted by —OCONHR_1; and
n is 2 or 3;

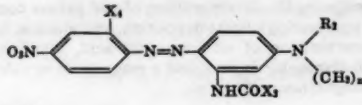
the orange or yellow brown dye component being a compound represented by the formula



wherein

X_2 and X_3' are individually chloro or bromo; and
R_3 is $-CH_2OCOR_4$, $-CH_2OCONHR_5$, $-CHOHCH_2Cl$ or $-CH-(CH_2Cl)OCOR_4$, R_4 being lower alkyl or phenyl, and R_5 being C_1–C_4 alkyl, C_2–C_4 alkenyl or phenyl;

and the red dye component being a compound represented by the formula:



wherein

X_4 is H, Cl, Br and CN;
X_2 is as defined above;
R_1 is as defined above;
R_2 is as defined above;
n is as defined above.

3,740,190

ANTIBACTERIAL LAUNDRY OIL AND DUST CONTROL OIL COMPOSITION

Richard E. Ware, Trainer, Pa., assignor to Sun Oil Company of Pennsylvania, Philadelphia, Pa.

Filed Oct. 1, 1971, Ser. No. 185,850
Int. Cl. B08c *3/00*
U.S. Cl. 8—137 **5 Claims**

A laundry oil containing 0.02 to 2.0 percent benzyl bromoacetate as an antibacterial agent and the process of laundering mops and other fabrics used to wipe dust with such oil.

3,740,191

ANTIBACTERIAL LAUNDRY OIL AND DUST CONTROL OIL COMPOSITION

Richard E. Ware, Trainer, Pa., assignor to Sun Oil Company of Pennsylvania, Philadelphia, Pa.

No Drawing. Filed Oct. 1, 1971, Ser. No. 185,851
Int. Cl. B08c *3/00*
U.S. Cl. 8—137 **6 Claims**

A laundry oil containing 0.015 to 2.0% of a 1,2-benzisothiazolone as an antibacterial agent and the process of laundering mops and other fabrics used to wipe dust with such oil.

3,740,192

METHOD FOR THE PREVENTION OF FOULING OF SHIPS

Oystein E. Rasmussen, 119 Hosleveien, 1340 Bekkestua, Norway

No Drawing. Filed Oct. 20, 1970, Ser. No. 82,504
Claims priority, application Norway, Oct. 30, 1969, 4,302
Int. Cl. B63b *59/00*
U.S. Cl. 21—58 **4 Claims**

Fouling of a ship is prevented by distributing ozone over the underwater surface of the ship. The ozone is passed into the sea continuously or periodically through perforations in or at the underwater surface of the ship, in form of pure ozone or ozone-enriched compressed air.

3,740,193

HYDROGEN PRODUCTION BY CATALYTIC STEAM GASIFICATION OF CARBONACEOUS MATERIALS

Clyde L. Aldridge and David Buben, Baton Rouge, La., and Ronald S. Goldberg, Hanover, N.H., assignors to Esso Research and Engineering Company

No Drawing. Filed Mar. 18, 1971, Ser. No. 125,821
Int. Cl. C10j *3/00*
U.S. Cl. 48—202 **9 Claims**

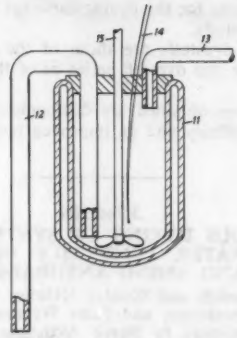
A hydrogen-rich gaseous stream is produced by contacting in a reaction zone operating at superatmospheric pressures and temperatures between 1000 and 1500° F. a carbonaceous material with steam introduced in the reaction zone at a rate between 1.0 and 10.0 weight H_2O/weight carbon/hr. in the presence of a catalyst composition comprising cesium carbonate.

3,740,194

ADIABATIC CALORIMETRY

Brian Norman Hendy, Knebworth, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Apr. 24, 1970, Ser. No. 31,565
Int. Cl. G01n *25/20, 27/32, 25/48*
U.S. Cl. 23—230 A **14 Claims**



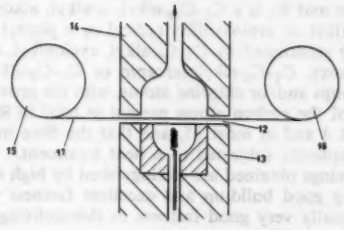
A means for controlling monomer feeding when making homogeneous copolymers involves the determination of the rate of reaction during the process using adiabatic calorimetry. A small sample is isolated from the reaction mixture and maintained under adiabatic conditions for a short period, while the reaction rate is determined from the rate of change of temperature of the sample. The sample is then returned to the reaction mixture. Both intermittent and continuous sampling are exemplified.

3,740,195

PROCESS AND DEVICE FOR MAKING STANDARD ANALYSIS GAS

Werner Lietzau, Heerstrasse 200, Frankfurt am Main, Germany

Filed Jan. 13, 1971, Ser. No. 106,139
Claims priority, application Germany, Jan. 23, 1970, P 20 02 933.8
Int. Cl. G01n *1/22*
U.S. Cl. 23—232 R **5 Claims**



Trace component is produced by decomposition of a predetermined amount of a salt and mixed with carrier

gas for concentrations on order of parts per million and billion. Batches of standard gas mixtures are made by breaking an ampule containing salt pyrolysis products in carrier gas. Continuous process decomposes salt on a strip moving through atmosphere of carrier gas with continuous drawing off of mixture of carrier gas and trace component at zone of decomposition of salt.

3,740,196
CHEMICAL SPOT TEST SYSTEM

Howard L. Stroterhoff, Baltimore, Md., assignor to the United States of America as represented by the Secretary of the Army

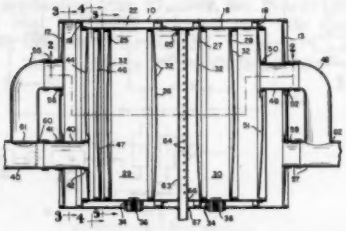
Filed Mar. 30, 1971, Ser. No. 129,360
Int. Cl. B65d *79/00*; G01n *31/22*
U.S. Cl. 23—253 TP **6 Claims**

An apparatus, material, and method of producing the material for an improved chemical spot test system; the invention being an aluminized paper in the apparatus to react exothermically with a $CuCl_2$ solution to generate heat to sensitize a mustard agent spot test.

3,740,197
CATALYTIC CONVERTER

George E. Scheitlin and Richard F. Little, Columbus, Ind., assignors to Arvin Industries, Inc., Columbus, Ind.

Filed May 10, 1971, Ser. No. 141,626
Int. Cl. F01n *3/14*; B01j *9/04*
U.S. Cl. 23—288 F **7 Claims**

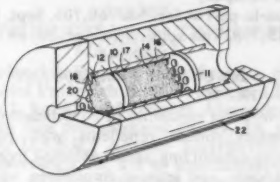


A catalytic converter for removing noxious pollutants from an exhaust gas stream having a conversion chamber mounted therein. Gas inlets and outlets are prvoided in open communication with said chamber and with a bypass passage around said chamber. A valve is connected to said inlet or outlets for selectively controlling the gas flow through the converter so that the exhaust gases passing through the converter may or may not be subjected to the action of the conversion chamber depending upon the positioning of said valve.

3,740,198
GAS GENERATOR STRUCTURE

Billy J. Sandlin, Athens, and William A. Duncan and James A. Murfree, Jr., Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the Army

Filed July 5, 1967, Ser. No. 651,326
Int. Cl. B01j *7/00*
U.S. Cl. 23—281 **9 Claims**



The use of porous firebrick (or a similar inert porous support material) which is shaped to fit a housing and thus acts as a bed for an initiator in a gas generator employing an exothermally decomposing monopropellant.

3,740,199
ORE SEPARATION PROCESS

Adrian M. Gammill, Hendersonville, Thomas C. Runion, Sevierville, and William R. Householder, Johnson City, Tenn., assignors to Nuclear Fuel Services Inc., Wheaton, Md.

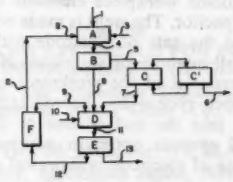
No Drawing. Continuation-in-part of application Ser. No. 666,506, Sept. 8, 1967. This application Apr. 7, 1971, Ser. No. 132,214
Int. Cl. C01f *1/00*; C01g *1/02*; C22b *51/00*
U.S. Cl. 423—10 **8 Claims**

A process for the recovery of columbium, tantalum, molybdenum, uranium, the rare earths and thorium from euxenite ore using thermite reduction to convert the ore to a product where the uranium and rare earths in the slag can be readily leached from the slag with mineral acids. The other product recovered is a metal regulus containing a commercially useable ferro-columbium or ferro-tantalum product.

3,740,200
PROCESS FOR EXTRACTING URANIUM FROM ITS ORES

René Gautier, La Madeleine, France, assignor to Ugine Kuhlmann, Paris, France

Filed Oct. 20, 1970, Ser. No. 82,498
Claims priority, application France, Oct. 22, 1969, 6936271
Int. Cl. C01g *43/00*
U.S. Cl. 423—6 **21 Claims**



Uranium is extracted from its ore by reacting said ore with ammonium bisulfate thereby forming a composition

containing uranium sulfate, extracting said sulfate from the composition and regenerating and recycling the ammonium bisulfate for further use in leaching the ore.

3,740,201
POLYOLEFIN EMULSIONS CONTAINING N,N-DIMETHYLSULFENYL DITHIOCARBAMATES

Gene N. Woodruff, Bartlesville, Okla., assignor to Phillips Petroleum Company

Continuation-in-part of Ser. No. 760,706, Sept. 18, 1968, Pat. No. 3,615,798. This application Apr. 30, 1971, Ser. No. 139,242

Int. Cl. C08d *7/00*; **C09d** *5/02*

U.S. Cl. 260—29.7 M **6 Claims**

Stable oil-in-water emulsions of N,N-dimethyl alkylsulfenyl dithiocarbamates rodent repellents with polyolefins are prepared using emulsifying agents selected from amphoteric, nonionic, cationic, and anionic emulsifiers, which emulsions can be readily applied to surfaces to render same rodent and roach repellent. If desired, the polyolefin emulsions can be blended with asphalt and asphalt emulsions prior to application to a substrate.

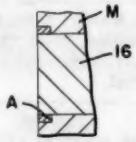
3,740,202
ELECTRICAL TERMINAL STRUCTURE

Robert Charles Swengel, Sr., R.D. 2, Hellam, Pa.; Emerson Marshall Reyner II, 108 N. Lockwillow Ave., Harrisburg, Pa.; and J. A. Crumley, R.D. 4, Mechanicsburg, Pa.

Application Apr. 12, 1968, Ser. No. 720,776, which is a continuation-in-part of application Ser. No. 433,350, Feb. 17, 1963. Divided and this application July 16, 1970, Ser. No. 55,326

Int. Cl. H01b *1/02, 13/00*

U.S. Cl. 29—191.6 **2 Claims**



A method and means is disclosed for welding metal of copper-to-copper or aluminum-to-aluminum systems to provide an electrical connection. The welding method is based upon fusion of the material of workpiece elements by an arc drawn between an anodic welding electrode and cathodic workpiece elements through the discharge of a capacitor. The weld is made with the electrode in motion and the rate of electrode withdrawal is controlled. A small quantity of aluminum is introduced into the melt of material of the workpiece elements for the copper-to-copper system by incorporating a small ring of aluminum into the end of one of the elements. In both material systems optimum parameters of applied power and rate of electrode withdrawal are reported.

ERRATUM

For Class 48—202 see:
Patent No. 3,740,193

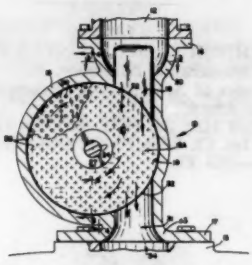
3,740,203
FUEL AND AIR MIXING DEVICE

Jerry W. Nezat, Rt. No. 1, P.O. Box 572E, Estacada, Oreg.

Filed May 19, 1971, Ser. No. 144,769

Int. Cl. B01f *3/02*; **F02m** *29/02*

U.S. Cl. 48—180 M **11 Claims**



A fuel-air mixing device located between an internal combustion engine and the engine's carburetor. A rotor assembly is journalled within a housing for rotation about an axis transversely orientated to the fuel-air mixture flow from the carburetor to the engine. The rotor assembly is comprised of a series of closely spaced discs with openings therein. The fuel-air flow intermediate the discs is subjected to turbulent action by the discs to further mix the fuel-air mixture.

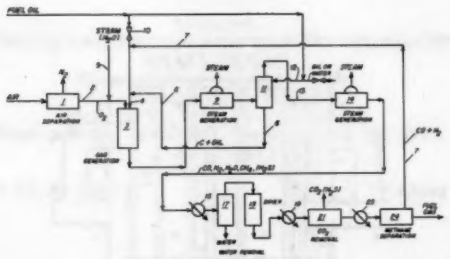
3,740,204
PROCESS FOR THE PRODUCTION OF METHANE FROM CARBONACEOUS FUELS

William L. Slater, La Habra, and Warren G. Schlinger, Pasadena, Calif., assignors to Texaco Inc., New York, N.Y.

Filed May 18, 1971, Ser. No. 144,602

Int. Cl. C01b *2/14*

U.S. Cl. 48—215 **9 Claims**



A process for the production of methane from carbonaceous fuels of greater molecular weight than methane by a non-catalytic, direct partial oxidation reaction in which the carbonaceous fuel and oxygen are reacted in the presence of hydrogen and carbon monoxide, optionally with the addition of steam, at an autogenous temperature in the range of 1200 to 2200° F. and at a pressure in the range of 300 to 4500 pounds per square inch. Carbon monoxide and hydrogen from the product are preferably totally recycled to the reaction so that ultimate products of the process are methane, carbon dioxide, and hydrogen

sulfide if the carbonaceous fuel contains sulfur. Substantially pure methane, suitable as fuel gas or pipeline gas may be produced from relatively low grade fuels and transported by pipeline to points of consumption.

3,740,205

METHOD AND APPARATUS FOR BENDING A GLASS RIBBON TO A DIFFERENT DRAW DIRECTION

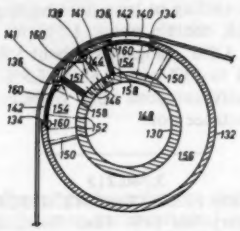
Etienne Cayphas, Lessines, Robert Leclercq, Auvelais, and Albert Van Cauter, Charleroi, Belgium, assignors to Glaverbel S.A., Watermael-Boitsfort, Belgium

Filed Apr. 13, 1971, Ser. No. 133,592

Claims priority, application Luxembourg, Apr. 17, 1970, 60,747

Int. Cl. C03b *15/18*

U.S. Cl. 65—25 A **19 Claims**



A method and apparatus for bending a glass ribbon in the plastic state by forming a gas cushion in the region where the glass is to be bent and adjacent the concave surface of the bent ribbon portion, the gas cushion creating a bearing force which cooperates with the tensile forces on the ends of the ribbon to produce the desired bent configuration and which maintains the bent portion of the ribbon out of contact with any solid body.

3,740,206

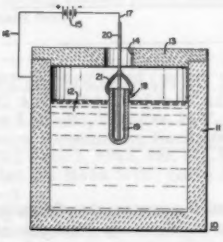
METHOD FOR MAKING SEALED CONTAINER FOR ELEMENTAL SODIUM AND METHOD OF FORMING

Harold A. Christopher, Scotia, N.Y., assignor to General Electric Company

Original application Mar. 27, 1969, Ser. No. 811,015, now Patent No. 3,607,405. Divided and this application June 28, 1971, Ser. No. 157,654

Int. Cl. H01m *21/14*; C03b *23/20*

U.S. Cl. 65—36 **2 Claims**



An evacuated, sealed container for pure elemental sodium is disclosed which has a casing, an ionic conducting portion in the casing, an electronic conductor in contact with the interior surface of the ionic conducting portion and extending outwardly from the casing. Such a container, when it is filled with pure elemental sodium, provides a suitable device for storing and dispensing the pure elemental sodium, or provides a sodium electrode with an associated ionic conducting electrolyte. A method is also described for forming such an evacuated, sealed container, and for filling the container with pure elemental sodium.

3,740,207

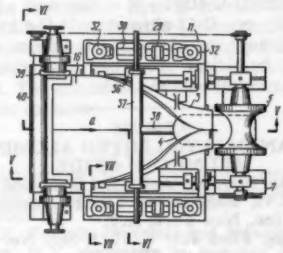
SHAPED PRODUCTS FROM THERMOPLASTIC MATERIAL

German Nikolaevich Bogrets, Oktyabrskaya ploschad 5, kv. 18; Nikolai Pavlovich Bondar, ploschad Leninskogo komsomola 1, kv. 43; and Grigory Alexandrovich Sizonenko, ulitsa Sim feropolskaya 19, kv. 29, all of Dnepropetrovsk, U.S.S.R.; Anatoly Gavrilovich Minakov, ulitsa Levanevskogo 18, kv. 6, Konstantinovka Donetskoi Oblasti, U.S.S.R.; Mikhail Ivanovich Barsukov, ulitsa Entuziastov 91, kv. 36, Kiev, U.S.S.R.; Grigory Iosifovich Mitkevich, ulitsa Ukrainskaya 204, Konstantinovka Donetskoi Oblasti, U.S.S.R.; Vyacheslav Fedorovich Dudkin, ulitsa Lenina 1, kv. 57; and Andrei Mikhailovich Teslya, ulitsa Dzerzhinskogo 24, kv. 55, both of Dnepropetrovsk, U.S.S.R.; and Nikolai Emelyanovich Kolomiets, ulitsa Shmidta 33, kv. 23, Konstantinovka Donetskoi Oblasti, U.S.S.R.

Filed July 22, 1970, Ser. No. 57,134

Int. Cl. C03b *9/10*

U.S. Cl. 65—67 **6 Claims**



A method of forming shaped products from thermoplastic materials, by bending a plastic strip with the use of shaper members which reciprocate both lengthwise and crosswise relative to a continuously moving strip. A device for carrying said method into effect is characterized by the fact that said shaper members are fixed to structural components which are imparted reciprocating motion from a drive both lengthwise and crosswise relative to the strip under treatment.

3,740,208

METHOD AND APPARATUS FOR FORMING CONTINUOUS SHEETS OF GLASS

Shiro Takahashi and Masataka Ichinose, Kitakyushu, Japan, assignors to Asahi Glass Co., Ltd., Tokyo, Japan

Filed Oct. 20, 1970, Ser. No. 82,442

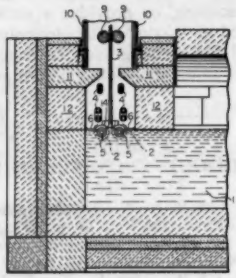
Claims priority, application Japan, Nov. 6, 1969, 44/88,392

Int. Cl. C03b *15/06*

U.S. Cl. 65—90 **6 Claims**

Method and apparatus for producing sheet glass by the vertical drawing of molten glass are described. The

apparatus comprises a pair of rotatable drawing elements partially submerged in a bath of molten glass, and the



glass is drawn up in the form of a ribbon through a slit between said drawing elements.

3,740,209

METHOD FOR THE CONTROL OF WEEDS

Gerhard Schrader, Wuppertal-Cronenberg, and Ludwig Eue and Helmuth Hack, Cologne, Germany, and Selichi Hirane, Masahiro Aya, Shigeo Kishino, and Nobuo Fukazawa, Tokyo, Japan, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Feb. 9, 1970, Ser. No. 10,025
Int. Cl. A01n *9/36*
U.S. Cl. 71—87 5 Claims

Methods of combating and controlling weeds using O-(2-nitro-phenyl)-O-ethyl - N - isopropyl - phosphoroamido-thioate, or O-(2-nitro-phenyl)-O-ethyl-N-isopropyl-amido-thionophosphate, which is known, which possesses strong herbicidal properties, and which may be produced by conventional methods.

3,740,210

MECHANICALLY-ALLOYED ALUMINUM-ALUMINUM OXIDE

Michael James Bomford and John Stanwood Benjamin, Suffern, N.Y., assignors to The International Nickel Company, Inc., New York, N.Y.

No Drawing. Filed July 6, 1971, Ser. No. 160,202
Int. Cl. B22f *9/00*
U.S. Cl. 75—.5 AC 10 Claims

A mechanically alloyed composite powder wherein individual particles include an aluminum matrix having equiaxed aluminum oxide dispersoid particles having a size of about 100 A. to 2,000 A. uniformly distributed therethrough at particle spacings of about 500 to 3,000 A. Products made by consolidating the mechanically alloyed powder exhibit improved strength properties at relatively low dispersoid contents.

A process for producing such mechanically alloyed composite powder including milling under dry conditions and in the presence of a surfactive agent, preferably a volatilizable organic material.

3,740,211

Cu-Fe SYSTEM ALLOY

Syoji Ueda, Kazuhiko Muto, and Shintaro Matsuo, Nagasaki, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 805,367, Mar. 7, 1969. This application Nov. 24, 1971, Ser. No. 202,009
Claims priority, application Japan, Mar. 15, 1968, 43/16,923
Int. Cl. C22c *39/20, 39/14;* F01d *5/14*
U.S. Cl. 75—122 18 Claims

A highly corrosion-resistant alloy of the system Cu-Fe, which has both copper-alloy-like characteristics in production techniques and corrosion-resistant properties, and steel-like characteristics in strength and low cost, the alloy consisting of 2–50 weight percent Cu, 5–20 weight percent Ni, 15–35 weight of Mn, and the balance of Fe, with 0.01–15 weight percent Cr or 0.01–5 weight percent Al added thereto.

3,740,212

OXIDATION RESISTANT AUSTENITIC DUCTILE NICKEL-CHROMIUM IRON

Nathan Lewis Church, Warwick, N.Y., assignor to The International Nickel Company, Inc., New York, N.Y.

No Drawing. Filed Mar. 31, 1971, Ser. No. 129,969
Int. Cl. C22c *39/20*
U.S. Cl. 75—128 C 10 Claims

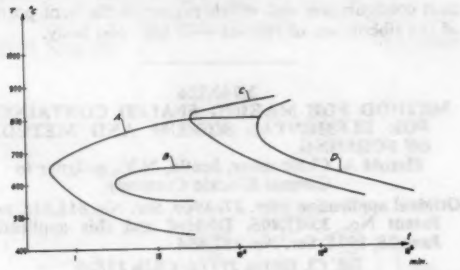
Directed to alloyed ductile irons having in the as-cast condition high temperature oxidation resistance, and useful high temperature strength and dimensional stability during thermal cycling or long time holding at high temperatures, which contain about 1.6% to 2.4% carbon, about 0.5% to 1.5% manganese, about 5% to 6.5% silicon, about 34% to 40% nickel, about 1.5% to 2.5% chromium, an effective amount of a graphite spheroidizing agent and the balance iron.

3,740,213

STAINLESS FERRITE-AUSTENITIC STEEL

Lars Ivar Hellner; Nils Erik Allan Hede, and Hans Elof Johansson, all of Karlskoga, Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

Filed May 12, 1969, Ser. No. 823,744
Claims priority, application Sweden, May 16, 1968, 6611/68
Int. Cl. C22c *39/20*
U.S. Cl. 75—128 G 1 Claim

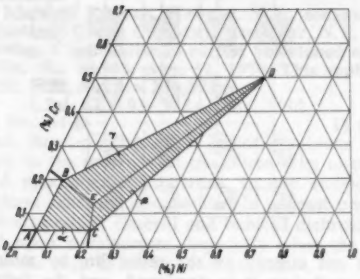


A stainless ferrite-austenitic steel of the following composition:

	Percent
C	0.02–0.08
Si maximum of	0.5
Mn maximum of	1.0
N maximum of	0.06
Cr	25–27
Ni	5–7
Mo	1.3–1.8

and columbium in such a content that the ratio ^{Cb}rest/C is at least eight, ^{Cb}rest referring to the total columbium content minus the content of columbium required for binding of the nitrogen present in steel to columbium nitride, and C referring to the total carbon content, the remainder being essentially iron, has a high resistance to intercrystalline corrosion.

3,740,214
ZINC ALLOY
Erich Pelze, Puchheim, near Munich, Germany, assignor to Stolberger Zink AG fur Bergbau und Huttenbetrieb, Aachen, Germany
Filed Oct. 9, 1970, Ser. No. 79,533
Claims priority, application Germany, Oct. 25, 1969, P 19 53 783.8
Int. Cl. C22c *17/00*
U.S. Cl. 75—178 R **5 Claims**



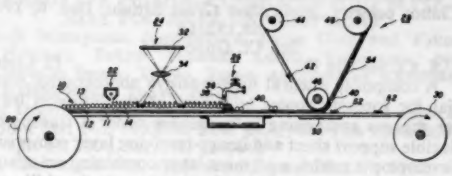
A ternary alloy of high-purity zinc, nickel and chromium having high creep resistance and other good mechanical properties for use as bands, strips, sheets, wire or rod which contains Cr and Ni within the area ABCD of the zinc-chromium-nickel composition diagram shown in the drawing wherein A corresponds to 0.05% by weight chromium and 0.05% by weight nickel (balance high-purity zinc), B corresponds to 0.20% by weight chomium and 0.05% by weight nickel (balance high-purity zinc), C corresponding to 0.05% by weight chromium and 0.20% by weight nickel (balance high-purity zinc), and D corresponds to 0.45% by weight to 0.55% by weight chromium and 0.45% by weight to 0.55% by weight nickel (balance high-purity zinc). Up to 1.7% by weight of zinc may be replaced by an equal quantity of copper.

3,740,215
METHOD FOR PRODUCING A HOT WORKED BODY
David L. Burk, Pittsburgh, and Orville W. Reen, Lower Burrell, Pa., assignors to Allegheny Ludlum Industries, Inc., Pittsburgh, Pa.
No Drawing. Filed Aug. 24, 1970, Ser. No. 66,641
Int. Cl. B22f *7/00*
U.S. Cl. 75—208 **7 Claims**

A method for producing a hot worked body having a low incidence of oxide inclusions. It comprises the steps of consolidating powder comprised of metallic particles into a porous body, substantially sealing the surface of said body by closing surface pores, heating said body, and hot working said body.

3,740,216
PHOTOELECTROSOLOGRAPHIC IMAGING EMPLOYING A RELEASABLE IMAGING LAYER
William L. Goffe, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed June 1, 1967, Ser. No. 642,830
Int. Cl. B41n *5/00*; G03g *13/14*
U.S. Cl. 96—1 **9 Claims**

An imaging member comprising a fracturable material in or at the surface of a soluble layer over an adhesively releasable interfacial layer over a substrate is processed to substantially completely remove said soluble layer and form an image pattern of fracturable material on said interfacial layer which is then contacted with a transfer member which is then stripped away whereby said interfacial layer in background pattern is released to said transfer member and said interfacial layer in image pattern is left on said substrate. The image pattern of fracturable material may or may not be stripped off, as desired.



3,740,217
PHOTOCONDUCTIVE COATING EMPLOYING AN IMBIBED CONDUCTIVE INTERLAYER
Eugene P. Gramza and Frederick A. Stahly, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Original application Mar. 29, 1968, Ser. No. 717,386, now Patent No. 3,597,272. Divided and this application Jan. 26, 1971, Ser. No. 109,959
Int. Cl. G03g *5/00, 5/06*
U.S. Cl. 96—1.5 **8 Claims**

An imbibition procedure is disclosed as a means for forming an electrically conductive layer on a suitable support. The conductive layer is formed by imbibing a binder-free solution of volatile solvent and a metal-containing semiconductor into an electrically insulating polymeric subcoating carried on a support and evaporating the solvent. The conductive layers are useful in electrophotographic elements.

3,740,218
PHOTOCONDUCTIVE ELEMENTS CONTAINING COMPLEXES OF LEWIS ACIDS AND FORMALDEHYDE RESINS
Lawrence E. Contois, Webster, and Stewart H. Merrill, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed June 1, 1971, Ser. No. 149,057
Int. Cl. G03g *5/00, 5/06*
U.S. Cl. 96—1.5 **7 Claims**

Certain formaldehyde resins are disclosed which form complexes with Lewis acids such as trinitrofluorenone to produce photoconductive compositions and elements of high speed and utility for electrostatic image formation.

3,740,219
PHOTOCONDUCTIVE ISOCYANATE REACTION PRODUCTS AND DEPOSITED LAYERS
Horst Heinz-Joachim Kosche, Duren, Germany, assignor to Renker G.m.b.H., Duren, Germany
No Drawing. Continuation-in-part of abandoned application Ser. No. 612,826, Jan. 13, 1967. This application Oct. 26, 1970, Ser. No. 84,185
Int. Cl. G03g *5/06, 5/08*
U.S. Cl. 96—1.8 **5 Claims**

Photoconductive sensitized and unsensitized layers for use with electro-photographic recording materials, are formed by the photoconductive reaction products of at least one aromatic or heterocyclic organic nitrogen compound which is substantially nonphotoconductive with at least one organic compound containing at least one isocyanate group, to provide a self-adhering photoconductor which may additionally include a known photoconductive material.

3,740,220

PHOTOGRAPHIC MATERIAL

Louis Maria De Haes, Edegem, Emiel Alexander Hofman, Mortsel, and Hugo Karel Gevers, Edegem, Belgium, assignors to Agfa-Gevaert, Mortsel, Belgium

No Drawing. Filed Dec. 5, 1969, Ser. No. 882,737
Claims priority, application Great Britain, Dec. 6, 1968, 58,152/68
Int. Cl. G03c 5/54
U.S. Cl. 96—29 R 12 Claims

A composite integral light-sensitive photographic material for forming copies by means of the diffusion transfer process comprising in successive order a transparent flexible support sheet and image-receiving layer comprising development nuclei, a pigment layer containing an opaque white or colored pigment dispersed in a hydrophilic colloid binder, wherein the pigment and the binder of the pigment particles are present in amount of from 7 to 25 g. per sq. m. and of from 0.5 to 4 g. sq. m., respectively, and a light-sensitive silver halide emulsion layer, the maximum developed reflex density of which is equal to or lower than 0.8. A photographic method using such material is also disclosed. The developed material has a positive image in the image-receiving layer which is visible directly through the transparent support sheet, together with a negative image in the emulsion layer which is hidden from the positive image by means of the intervening pigment layer so that the material can be exposed, developed and viewed in the form of an integral assembly without separation of the parts thereof.

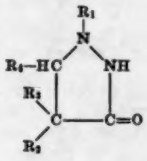
3,740,221

DEVELOPMENT OF PHOTOGRAPHIC MATERIAL

Jozef Frans Willems, Wilrijk, and Paul Maurice Schots, Berchem, Belgium, assignors to Agfa-Gevaert, Mortsel, Belgium

No Drawing. Filed Oct. 7, 1970, Ser. No. 78,919
Claims priority, application Great Britain, Oct. 12, 1969, 52,567/69
Int. Cl. G03c 5/54, 5/30
U.S. Cl. 96—29 R 6 Claims

A method of developing light-sensitive silver halide elements is described whereby the elements are treated after exposure with an aqueous alkaline composition in the presence of a hydroxylamine developing agent and a 1-aryl-3-pyrazolidinone compound of the formula:



wherein R_1 is aryl, R_2 and R_3 are hydrogen, alkyl, aralkyl or aryl, and R_4 is hydrogen, alkyl, alkoxy, aralkoxy or aryloxy. The 1-aryl-3-pyrazolidinone compound exhibits a superadditive effect on the hydroxylamine developing agent.

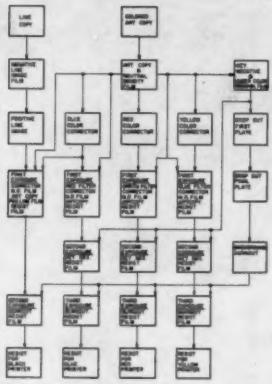
3,740,222

METHOD OF MAKING RESISTS TO BE USED IN ETCHING ROTOGRAVURE CYLINDERS FOR FOUR-COLOR PRINTING

Andrew David McGlashan, Sr., Warsaw, Ind., assignor to R. R. Donnelley & Sons Company

Continuation of abandoned application Ser. No. 726,843, May 6, 1968. This application Mar. 23, 1971, Ser. No. 127,308
Int. Cl. G03c 5/06
U.S. Cl. 96—30 7 Claims

This invention provides a method for making corrected color separations directly onto a light sensitive silver halide gravure resist film which after exposure and development is used in etching rotogravure cylinders. Undercolor removal and background burnout is also



carried out directly on the resist film by multiple exposure to before it is developed, and the fully color-corrected continuous tone positive conventionally used in preparing gravure resist films is entirely eliminated.

3,740,223

MIGRATION IMAGING STRUCTURE

William L. Goffe, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Continuation-in-part of application Ser. No. 460,377, June 1, 1965, now Patent No. 3,520,681, which is a continuation-in-part of application Ser. No. 403,002, Oct. 12, 1964, now abandoned. This application May 1, 1967, Ser. No. 635,256
Int. Cl. G03g 5/00
U.S. Cl. 96—1.5 23 Claims

An imaging structure comprising a supporting substrate, an overlayer of softenable material overlying said substrate, and a layer of particulate photosensitive material embedded at the upper surface of said softenable material.

3,740,224

PHOTOSENSITIVE COMPOSITIONS FOR THE PRODUCTION OF PRINTING PLATES

Helmut Barzynski, Lambsheim, and Carl Heinrich Krauch, Heidelberg, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Rhineland-Pfalz, Germany

No Drawing. Filed July 13, 1971, Ser. No. 162,273
Claims priority, application Germany, July 18, 1970, P 20 35 848.9
Int. Cl. G03f 7/02; G03c 1/68
U.S. Cl. 96—33 4 Claims

Photosensitive compositions based on ethylene oxide polymers, polycarboxylic acids, olefinically unsaturated monomers and additions of photoinitiators and polymerization inhibitors.

The photosensitive compositions of the invention are suitable for the preparation of printing plates.

3,740,225

METHOD OF MAKING PRINTED CIRCUIT BOARDS

Leo Fiderer, 5640 Aldea Ave., Encino, Calif. 91316

Filed Aug. 31, 1970, Ser. No. 68,175
Int. Cl. G03c 5/04
U.S. Cl. 96—43 5 Claims

A perforated control tape is provided having a pattern of holes related to the pattern of elements of the desired printed circuit pattern. The holes in the tape control the markings on a photosensitive film strip such that the markings on the film produce the lines and shapes of a segment

of the desired photomaster for a printed circuit. After development, as many film strips as required to produce the complete photomaster are assembled on a backing to form a composite corresponding to the image of the desired photomaster. A final photomaster for the printed circuit board is then made from the film strips assembled on the backing.

3,740,226

FOGGED, DIRECT-POSITIVE SILVER HALIDE EMULSIONS CONTAINING TRIAZOLIUM SALTS AND THE USE THEREOF IN REVERSAL PROCESSES

Glen Marshall Dappen, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 68,503, Aug. 31, 1970. This application June 30, 1971, Ser. No. 158,595

Int. Cl. G03c *5/24, 1/34, 5/30*

U.S. Cl. 96—64 R 11 Claims

Fogged, direct-positive, silver halide emulsions can be developed in the presence of triazolium salts to produce improved photographic properties. In one embodiment, bistriazolium salts are incorporated in at least one layer of the direct-positive element and reduced dichroic fog is observed upon development, especially when the developer contains high halide-ion concentrations.

3,740,227

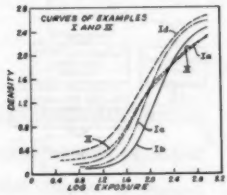
TWO-STEP METHOD FOR DEVELOPING SILVER HALIDE EMULSION FILM

Zoila Reyes, Menlo Park, Calif., assignor to Stanford Research Institute, Menlo Park, Calif.

Filed Oct. 15, 1971, Ser. No. 189,695

Int. Cl. G03c *5/30*

U.S. Cl. 96—66.3 5 Claims



Particular development accelerators and inhibitors are used with known developing agents of the hydroquinone type in a two-step development of silver halide emulsion films to improve density and contrast in the shadow and midtone areas, to extend useful linear range in the highlight area and to enhance threshold sensitivity. The characteristic density-log exposure curve produced by this method has a dual gamma. The developer employed in the first step contains a polyethylene glycol accelerator, and preferably the developer employed in the second step contains a polyethoxylated quaternary ammonium salt as an accelerator and nitrobenzimidazole nitrate as an inhibitor.

3,740,228

LIGHT SENSITIVE PHOTOGRAPHIC MATERIAL

Hans Ohlschlager, Cologne, and Wolfgang Himmelmann, Opladen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Feb. 22, 1971, Ser. No. 117,759

Claims priority, application Germany, Feb. 28, 1970, P 20 09 498.8

Int. Cl. G03c *1/84*

U.S. Cl. 96—84 A 2 Claims

Antihalation and filter dyes can advantageously be mordanted in photographic layers by means of mordanting polymer compounds which are condensation products of aminoguanidine and homo or copolymers of styrene derivatives containing keto groups.

3,740,229

DIAZOTYPE PHOTOGRAPHIC COPYING MATERIAL FOR HEAT DEVELOPMENT

Shoji Maruyama, Sagamihara, Etsuo Oida and Takao Hamada, Tokyo, Tomiaki Asami, Yokohama, and Susumu Iwata, Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 709,190, Feb. 29, 1968. This application Apr. 12, 1971, Ser. No. 133,442

Claims priority, application Japan, Mar. 7, 1967, 42/14,295

Int. Cl. G03c *1/58*

U.S. Cl. 96—91 R 15 Claims

A diazotype photographic copying material that is heat developable is comprised of a support having formed thereon a light-sensitive layer consisting essentially of a light-sensitive diazonium compound and an azo dye coupler consisting of a polyhydroxybenzoic acid compound.

3,740,230

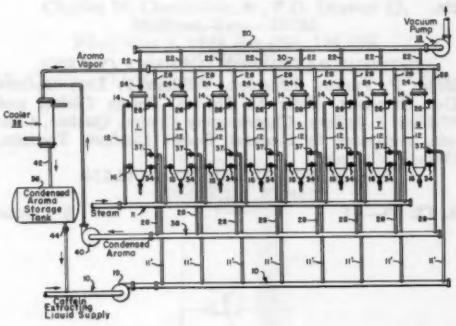
PROCESS FOR DECAFFEINATING COFFEE

James Patrick Mahlmann, Wayne, N.J., assignor to General Foods Corporation, White Plains, N.Y.

Filed Apr. 29, 1971, Ser. No. 138,518

Int. Cl. A23f *1/10*

U.S. Cl. 99—69 5 Claims



A decaffeinated coffee having quality improvement is effected by removing the green coffee flavors and aromas prior to introducing the coffee into one end of a counter current extraction zone for water extracting the caffeine from the coffee and then adding back the flavors and aromas to the decaffeinated coffee at the other end of the counter current extraction zone prior to discharging the decaffeinated coffee from the extraction zone.

3,740,231

COFFEE BREWER

Ted H. Drwal, Chicago, Ill., and Michael J. Perlman, 533 Brier Hill Road, Deerfield, Ill. 60015; said Ted A. Drwal assignor to said Michael J. Perlman

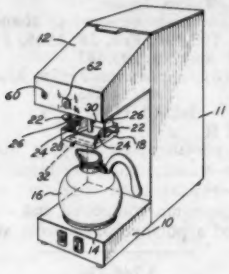
Filed May 24, 1971, Ser. No. 94,322

Int. Cl. A23f *1/08*

U.S. Cl. 99—71 9 Claims

A no-drip siphonless beverage maker, for making coffee and the like, includes a tank of heated water which can be selectively discharged from the tank through the material from which the beverage is made. In addition to a thermostatically controlled heater located in heat transfer relation with water in the tank for heating the water in the normal manner, means are provided to maintain

the top of the tank continuously heated to prevent the accumulated air from contracting during the brew cycle. This may be effected by use of a separate band heater at the top of the tank, by selective positioning of the thermostatically controlled heater or by use of heat insulation means at the top of the tank. During the brew cycle, hot water is discharged from the tank in the normal fashion,



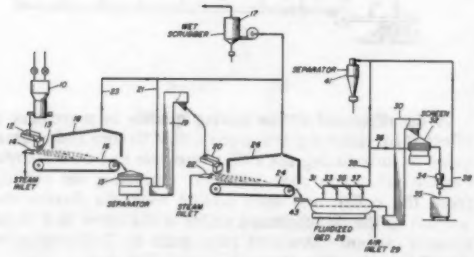
but in addition, sufficient air is released at the top of the tank during the cycle to insure that the air barrier between the top of the tank and the water is maintained at this portion of the tank. This keeps the level of the water in the tank at the level of the opening of the hot water discharge tube, thereby preventing dripping at the end of the brew cycle.

3,740,232

AGGLOMERATION OF INSTANT COFFEE

William F. Purves, Islington, William F. Lee, Dollard Des Ormeaux, Peter H. Davies, Pointe Claire, and William J. Jeffery, Chateauguay Centre, Quebec, Canada, assignors to General Foods Limited, Toronto, Ontario, Canada

Filed May 20, 1971, Ser. No. 145,150
Int. Cl. A23f *1/08*
U.S. Cl. 99—71 **8 Claims**



This invention relates to the agglomeration of water soluble products in fine powder form such as coffee wherein the product is formed into a falling curtain and then carried in a horizontal direction by jets of steam that are directed through the curtain. The use of steam jets in the agglomeration of coffee in this way is not broadly new. The novel aspect of this invention is the performing of the steam entraining function over a conveyor so that as the steam agglomerated powder drops, it is caught by the conveyor. The successful operation of the agglomeration process in this way depends upon the controlling of the atmosphere above the conveyor and in this respect, the excess moisture from the steam jets must be exhausted from the atmosphere above the conveyor at a rate that maintains a vapour cloud above a substantial portion of the conveyor that is capable of imparting moisture to some of the product as it falls on the conveyor and during its residence time on the conveyor.

3,740,233

CHILLPROOFING BEER WITH ENZYME OBTAINED FROM *MUCOR PUSILLUS* LINDT

John H. Nelson, Waukesha, Wis., and Paul R. Witt, Elmwood Park, Ill., assignors to Dairyland Food Laboratories, Inc., Waukesha, Wis.

No Drawing. Filed Oct. 15, 1970, Ser. No. 81,174
Int. Cl. C12h *1/12*
U.S. Cl. 99—48 **5 Claims**

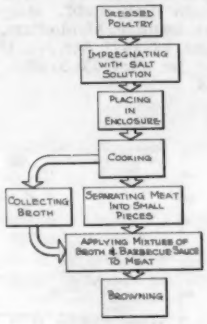
An enzyme system obtained from pure culture fermentation by *Mucor pusillus* Lindt is utilized in beer production, primarily to enhance chill stability of the finished product.

3,740,234

METHOD OF PREPARING BARCECUED TURKEY

Billie P. Price and Lane B. Price, both of Rte. 7, Monroe, N.C.

Filed Jan. 21, 1971, Ser. No. 108,282
Int. Cl. A22c *21/00*
U.S. Cl. 99—107 **2 Claims**



A method of preparing barbecued poultry such as turkey which closely simulates barbecued pork comprising impregnating a dressed carcass of poultry with a salt solution and confining the salt impregnated carcass in an enclosure. The confined carcass is cooked while collecting the broth in the enclosure. After cooking, the carcass is removed from the enclosure and the meat thereof separated into relatively small pieces and subjected to a mixture of the collected broth and a barbecue sauce in the presence of heat with the heat providing enhanced penetration of the mixture into the pieces of meat.

3,740,235

METHOD OF FORMING A BEEF LOAF

Philip D. Weiner, Fort Wayne, Ind., assignor to Peter Echrich & Sons, Inc.

No Drawing. Continuation of application Ser. No. 756,422, Aug. 30, 1968. This application Aug. 13, 1970, Ser. No. 63,651
Int. Cl. A23l *1/31*
U.S. Cl. 99—107 **8 Claims**

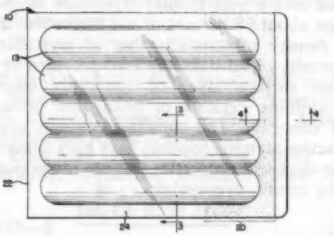
A process of forming an uncooked meat loaf that may be subsequently cooked without a "reheated" flavor and sliced including the steps of grinding large lean muscles to the size of about a half pound or less, mixing the same together with seasoning, adding an all-meat binder formed of relatively finely ground trimmings and continuing the

mixing, stuffing the mix into containers such as molds or casings, and heating the stuffed containers until the internal temperature thereof is on the order of 100° F.

3,740,236
PARTIALLY DEFATTED NUT COATING AND RECONSTITUTING PROCESS
James R. Baxley, Edenton, N.C., assignor to Peanut Research & Testing Laboratories, Inc., Edenton, N.C.
No Drawing. Continuation of abandoned application Ser. No. 739,160, Jan. 24, 1968. This application Apr. 15, 1971, Ser. No. 134,395
Int. Cl. A23l *1/36*
U.S. Cl. 99—126 2 Claims

Nuts which have had a substantial portion of their oils removed by hydraulic pressing are reconstituted in an aqueous coating solution which is proportional to the amount of nuts being reconstituted. The solution reconstitutes the nuts to their original configuration and, at the same time, applies a coating which binds and seals the outer surface of the nut, controls the quantity of water absorbed by the nut and adds flavor and coloring to the nut. The aqueous solution is comprised of water and dextrin in proportioned amounts and a dry powdered coating is added comprised of salt, monosodium glutamate, yeast extract, starch, dextrin, herbs and spices.

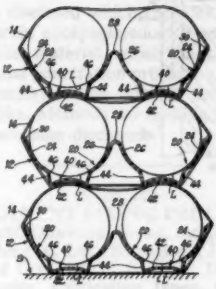
3,740,237
CONTINUOUS METHOD FOR MANUFACTURING HERMETICALLY SEALED PACKAGES HAVING DUAL SEALS
Paul E. Grindrod and Robert L. Goller, Madison, Harry L. Radloff, Sun Prairie, and Oscar E. Selferth, Madison, Wis., assignors to Oscar Mayer & Company, Inc., Madison, Wis.
Filed Nov. 25, 1970, Ser. No. 92,560
Int. Cl. B65b *51/02*
U.S. Cl. 99—171 S 8 Claims



A continuous method of enclosing a product between a pair of films so as to provide a package having a product enclosing portion and a peripheral flange. The pair of films are joined to form a hermetic, dual seal, by applying a continuous strip of peelable bond adhesive thru a portion of the film destined to become a peripheral flange and extending partially into that portion of the film destined to become the product enclosing portion and providing the remainder of the peripheral flange with means for permanently bonding the pair of films.

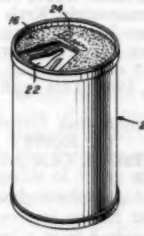
3,740,238
STACKABLE COOKIE PACKAGE AND TRAY
Seymour C. Graham, 2800 Lake Shore Drive, Chicago, Ill. 60657
Filed Jan. 4, 1971, Ser. No. 103,381
Int. Cl. B65d *21/02*
U.S. Cl. 99—171 CT 11 Claims

A cookie package including an open-topped cookie tray defining parallel compartments each defining a floor section for spacing a stack of cookies in a said tray away from a stack of cookies in a like underlying tray. The tray provides support ribs effectively for contacting cookies at spaced points for so spacing the cookies, and for resiliently cushioning the cookies against shock and stacking



loads. The floor section of a superposed tray nestingly receives cookies in an underlying tray to resist transverse sliding movement to stabilize unsupported stacks of such packages.

3,740,239
SALT IMPREGNATED DEVICE FOR CONTAINERS
Charles W. Chancellor, Jr., P.O. Drawer 15, Midland, Tex. 79701
Filed May 3, 1971, Ser. No. 139,439
Int. Cl. B65b *3/00*
U.S. Cl. 99—171 B 8 Claims

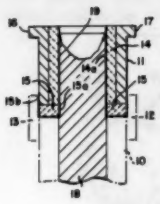


A salt impregnated device is provided having a lower surface which is coated with an adhesive, or similar material, for holding the device to the top of a drinking container, such as a beer can, and an upper surface which is coated or impregnated with table salt, or the like, such that the drinker's lips or tongue remove a small amount of salt each time the person takes another drink from the container, thereby supplementing and enhancing the enjoyment of the drink.

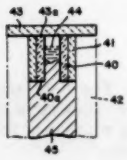
3,740,240
INGOT MOLD HOT TOP HEAT INSULATION BOARD AND METHOD OF PREPARING SAME
Charles G. Sproule, Jr., Tredyffrin Township, and Herbert F. Wagner, Jr., Wayne, Pa., assignors to C. G. Sproule and Associates, Inc., Wynnewood, Pa.
Filed Oct. 7, 1970, Ser. No. 78,827
Int. Cl. B28b *7/36*
U.S. Cl. 106—38.25 11 Claims

An ingot mold hot top made of light weight heat insulation board, especially adapted for use in regulating the solidification of a molten mass of metal in a mold,

is prepared from a composition comprising perlite, cellulose filler material and binder. At least one surface of



the resulting material is treated with silica, or other refractory material.



3,740,241
SILVER ACTIVATED PHOSPHATE GLASS BATCHED WITH NITRITE

Heinz Brömer, Hermannstein, Kreis Wetzlar, and Norbert Meinert and Hans-Jurgen Preuss, Wetzlar, Germany, assignors to Ernst Leitz, Wetzlar, Germany

Continuation-in-part of abandoned application Ser. No. 701,080, Jan. 29, 1968. This application Dec. 28, 1970, Ser. No. 102,031
Claims priority application Germany, Feb. 9, 1967, L 55,695
Int. Cl. C03c *3/00*
U.S. Cl. 106—47 R **9 Claims**

A silver-activated phosphate glass is disclosed for use as a dosimeter glass having improved weathering resistance. The glass is melted from a batch composition consisting essentially of:

35.4–46.6 percent by weight of lithium metaphosphate;
28.4–44.6 percent by weight of aluminum metaphosphate;
2–8 percent by weight of silver metaphosphate;
7–20 percent by weight of beryllium oxide; and
0.1–2 percent by weight of sodium nitrite wherein the summation of lithium metaphosphate, aluminum metaphosphate and silver metaphosphate is 78.0–88.0 percent by weight.

3,740,242
OPTICAL GLASSES

Marga Faulstich, Mainz, and Willy Ritze, Mainz-Monbach, Germany

Continuation of abandoned application Ser. No. 1,960, Jan. 12, 1970, which is a continuation of application Ser. No. 576,403, Aug. 31, 1966. This application Mar. 4, 1971, Ser. No. 121,167
Claims priority, application Germany, Sept. 4, 1965, J 28,924
Int. Cl. C03c *3/08, 3/10, 3/30*
U.S. Cl. 106—54 **22 Claims**

Thorium oxide and beryllium oxide-free glasses suitable to continuous melting and production having the following comparative values:

Index of refraction:	Abbe value
n_d 1.693	ν_d 53
n_d 1.761	ν_d 41
n_d 1.750	ν_d 37

and having a composition:

	Weight percent
SiO_2	18.0–23.1
B_2O_3	7.6–14.8
$SiO_2+B_2O_3$	27.0–33.8
BaO	27.1–46.2
La_2O_3	3.6–19.2
$BaO+La_2O_3$	30.7–62.9
CdO	0.8–16.1
ZrO_2	1.0–3.5
$CdO+ZrO_2$	2.3–19.0

3,740,243
HIGH SHEAR, ROLLED ALUMINA CERAMIC SUBSTRATE

Karl A. Kappes and Sydney Bateson, Oshawa, Ontario, Canada

Continuation-in-part of application Ser. No. 56,045, June 30, 1970, which is a continuation-in-part of application Ser. No. 852,056, Aug. 21, 1969, which in turn is a continuation-in-part of application Ser. No. 687,872, Dec. 4, 1967, all now abandoned. This application June 21, 1971, Ser. No. 154,983
Claims priority, application Canada, Dec. 20, 1966, 978,467
Int. Cl. C04b *35/02*
U.S. Cl. 106—65 **4 Claims**

A high density high shear alumina ceramic substrate which is especially suitable for use as a substrate for the deposition of thin metallic films used in electronic applications said substrate having a surface smoothness of better than 8 micro inches, without the use of a glaze combined with a bulk tabular crystalline alumina density of at least about 98 percent of the theoretical density of a surface density substantially that of crystalline alumina and a porosity of substantially zero provided by an unique crystalline surface layer of randomly oriented close packed alumina crystals of hexagonal prismatic form on said substrate. The substrates, which are produced from reactive alumina powder, have high flexural strength, excellent electrical properties and are impervious to penetration by metals, dyes or inks.

3,740,244
PROCESS FOR PRODUCING COLORED PEARL ESSENCES

Nobumitsu Yano, Saitama-ken, Masao Fukushima, Itaru Fukinbara, and Masanori Kishi, Tokyo, and Kazuyoshi Kimura, Saitama-ken, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed May 6, 1971, Ser. No. 140,955
Claims priority, application Japan, May 16, 1970, 45/41,297
Int. Cl. C08j *1/10*
U.S. Cl. 106—291 **8 Claims**

Crystals exhibiting pearl luster of various color tones (pearl essences) which have smooth surfaces and are uniform in size are obtained in high yields by crystallizing according to an ordinary procedure a compound selected from the group consisting of nucleic acid-related compounds, triazine compounds and basic lead carbonate from an aqueous solution of said compound in the presence of a water-soluble dye. The thus obtained colored pearl essences are incorporated into plastic materials or the like to provide coloring and decorative effects which cannot be attained by the use of dyes alone.

3,740,245

ANTIMONY-CONTAINING INORGANIC COMPOSITION OF MATTER AND METHOD FOR PREPARING SAME

Edward L. White, Freehold, Joseph Schwarcz, Plainfield, and William D. Lang, Rahway, N.J., assignors to N L Industries, Inc., New York, N.Y.

No Drawing. Filed June 1, 1971, Ser. No. 149,021
Int. Cl. C09c *1/00, 1/28*
U.S. Cl. 106—303 20 Claims

A new composition of matter useful as a flame retardant additive in plastics, paints, fibers, etc. is prepared by reacting antimony trioxide or an antimony trioxide generating compound with a substrate comprising hydrous silica or a hydrous alkali or alkaline earth metal silicate in a weight ratio in the range of from 1:4 to 1:1 on an antimony trioxide:substrate basis, the reaction being carried out by calcining an admixture of said compounds at a temperature within the range of from 400° C. to 550° C. in an oxygen containing atmosphere.

While the description and illustrations which follow are directed primarily to the use of the antimony-containing inorganic composition of matter of this invention as a flame retardant additive for plastics it has other uses as for example as a catalyst for promoting polymerization of monomers.

3,740,246

PROCESS FOR IMPROVING POLYAMIDE FILMS

Mutsuo Kuga, Tatuo Iwasaki, Kayomon Kyo, and Atsuo Yoshioka, Kyoto, Japan, assignors to Unitika Kabushiki Kaisha, Hyogo-ken, Japan

No Drawing. Filed Jan. 11, 1971, Ser. No. 105,725
Claims priority, application Japan, Jan. 12, 1970, 45/3,386
Int. Cl. B44d *1/32*
U.S. Cl. 117—7 13 Claims

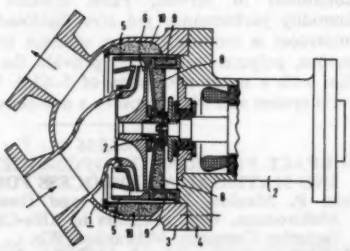
The present invention relates to improved polyamide films formed by the process utilizing a concurrent biaxial drawing technique, followed by heat-setting of the drawn film with simultaneous curing of a resin composition applied to the film surface which is of a heat-setting and hydrophobic nature.

3,740,247

HEAT INSULATION FOR MACHINE PARTS

Friedrich Schweigert, Nuremberg, and Peter Schroder, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed May 18, 1970, Ser. No. 38,101
Claims priority, application Germany, June 7, 1969, P 19 29 027.8
Int. Cl. B32b *17/04*
U.S. Cl. 117—8 2 Claims



Insulating bodies of glass wool or rock wool are adjusted to the shape of machine parts which they are to insulate. The fibers of the insulating bodies are coated with a heat resistant and permanently elastic binder and are connected to each other with the binder. The entire mass of insulating bodies is coated with a layer of the binder and openings are provided in the layer for pressure balance.

3,740,248

ANTI-OFFSET POWDER

Warren G. Buhler, Westfield, and Albert Maletsky, Ramsey, N.J., assignors to Oxy-Dry Sprayer Corporation, Chicago, Ill.

No Drawing. Filed Dec. 28, 1970, Ser. No. 102,136
Int. Cl. B41m *1/06, 7/02*
U.S. Cl. 117—13 8 Claims

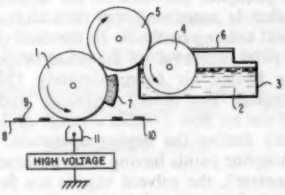
A powder is disclosed which includes a rigid core material, e.g.—starch, encapsulated with an outer shell of a wax or wax-like material which has certain predetermined melting and penetration properties, the powder finding particular utility in the printing field for preventing offset and the like. Methods for making the wax-encapsulated powder are also disclosed.

3,740,249

SOLVENT FIXING PROCESS

Koichi Takiguchi, Odawara, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 1, 1971, Ser. No. 185,619
Claims priority, application Japan, Oct. 1, 1970, 45/86,240
Int. Cl. G03g *13/20*
U.S. Cl. 117—21 6 Claims



A process for fixing toner images with a solvent which comprises contacting a film of a solvent formed on the surface of a grounded conductive roller with the front surface of a support having thereon toner images while applying to the back side of the support a corona discharge of a polarity opposite to the charge of the toner images to thereby fix the toner images on the support, said solvent being capable of fixing said toner image and being a non-conductive and non-polar liquid.

3,740,250

RARE EARTH OXIDE PHOSPHORS HAVING INERT, NON-LUMINESCENT LAYER THEREON

Michael J. Hammond and Raymond F. Herner, Towanda, Pa., assignors to Sylvania Electric Products, Inc.

No Drawing. Original application Feb. 28, 1969, Ser. No. 803,429, now Patent No. 3,619,265. Divided and this application Mar. 26, 1971, Ser. No. 128,588
Int. Cl. C09k *1/10*
U.S. Cl. 117—33.5 C 2 Claims

A rare earth oxide host phosphor has incorporated thereon an outer layer of chemically combined fluoride ion that is inert and non-luminescent. The coating increases the adherence properties of the phosphor in slurry application techniques for the manufacture of television screens by preventing poisoning of the phosphor particles by dichromate ions present in the slurry. The phosphor is coated by bathing in a .05 molar fluoride bath, in acidic solution, about 400 to 500 grams of phosphor per liter of solution, agitating for about 20 to 30 minutes, and decanting the acidic solution, washing and then filtering and drying the phosphor. The drying temperature should be less than 200° C. to prevent disruption of the coating.

3,740,251
METHOD OF UNIFORMLY COATING A TUBULAR LAMP ENVELOPE WITH PHOSPHOR
Robert W. Repsher, Kinnelon, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 20, 1969, Ser. No. 808,802
Int. Cl. F21k
U.S. Cl. 117—33.5 L 7 Claims

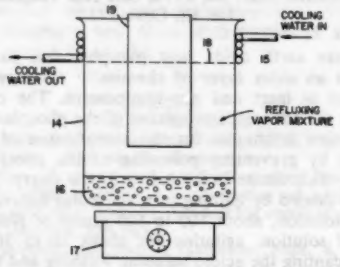
FLUSH BULB WITH WATER-BASE PHOSPHOR PAINT
FORCE DRY FOR 2 MINUTES WITH AIR (105°F & 650 FEET PER MINUTE)
FORCE DRY FOR 9 MINUTES WITH AIR (105°F & 250 FEET PER MINUTE)
COMPLETE DRYING WITH 5 MINUTE FLOW OF AIR AT 105°F & 650 FEET PER MINUTE
BAKE COATED BULB IN AIR TO VAPORIZE BINDER

The phosphor paint is flushed through the vertically-positioned envelope and the vaporized solvent is removed from the envelope in such a manner that setting and drying of the coating is accomplished at a rate which deposits a layer of phosphor particles on the inner surface of the envelope that is more uniform than that achieved with conventional coating methods. In the case of a water-base phosphor paint, removal of the water vapor is achieved by passing heated air (approximately 155° F.) downwardly through the coated envelope and varying the velocity of the air flow (within a range of 250 to 650 feet per minute) during the drying operation.

With phosphor paints having an organic solvent (xylene or butyl acetate), the solvent vapors are first flushed out with air through the top of the coated envelope by closing the lower end of the envelope, the injection of air is then stopped and the lower end of the envelope is opened to allow the heavier-than-air solvent vapors to flow out of the envelope through its lower end, and air at a low velocity (150 to 200 feet per minute) is then passed through the envelope to complete the drying cycle.

The coated bulbs in each case are lehred in air at a temperature of from about 1200° to 1250° F. for about 2 minutes to volatilize and remove the organic binder from the phosphor layer.

3,740,252
ADHESION OF ORGANIC MATERIALS TO ORGANIC POLYMERS
Saul W. Chaikin, Menlo Park, Calif., assignor to Xidex Corporation, Sunnyvale, Calif.
Filed Oct. 23, 1970, Ser. No. 83,551
Int. Cl. B44d *1/092, 5/04*
U.S. Cl. 117—34 19 Claims



Treatment of organic polymers such as oriented polyethylene terephthalate film with the vapor phase of a halo-substituted fatty acid such as trichloroacetic acid to improve adhesion with organic materials. Typical is the improvement of the bond to organic polymeric vehicles used in making photographic film.

3,740,253
METHOD FOR THE MANUFACTURE OF A HIGHLY WATER RESISTANT PAPER
Tatsuaki Hattori, 1621 Sakazu, Kurashiki, Japan
No Drawing. Filed Dec. 9, 1969, Ser. No. 883,243
Claims priority, application Japan, Dec. 13, 1968, 43/91,815
Int. Cl. B44d *1/44;* B32b *7/10*
U.S. Cl. 117—62 10 Claims

Paper which has been provided with a coating comprised of a thermoplastic binding agent and a pigment is treated with a mixed aqueous solution of (1) boric acid or an ammonium or metal salt thereof, (2) a monovalent or divalent water soluble metallic salt or an ammonium salt characterized by a high salting out property, and, optionally preferably, (3) a water soluble metallic salt which is a highly effective chelating agent, to enhance the water resistance of such coated paper.

3,740,254
METHOD OF VACUUM METALLIZING THERMOPLASTIC POLYMERIC FILM AND RESULTING PRODUCT
Robert Clive Lansbury, Harpenden, and David Mann, St. Albans, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Apr. 9, 1971, Ser. No. 132,906
Claims priority, application Great Britain, Apr. 29, 1970, 20,657/70
Int. Cl. B32b *27/06;* B44d *1/14*
U.S. Cl. 117—71 R 7 Claims

Using resins containing an isocyanate-ended polyurethane of average moleculer weight more than 1000 and an organic polyisocyanate containing an average of more than two isocyanurate groups per molecule as primer coatings for metallizing thermoplastic films.

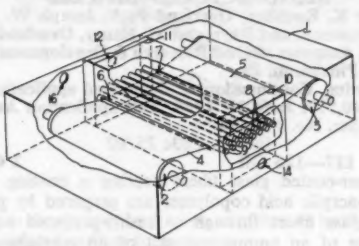
3,740,255
HUMIDITY RESISTANT PAINT SYSTEMS
David Brian Fox, Chelsea, Victoria, Australia, assignor to Dulux Australia Ltd., Melbourne, Victoria, Australia
No Drawing. Filed July 26, 1971, Ser. No. 166,264
Claims priority, application Australia, Aug. 7, 1970, 2,108/70
Int. Cl. B32b *15/08*
U.S. Cl. 117—74 4 Claims

Conventional paint systems consisting of an undercoat film adhering to a metallic surface and a superimposed film of protective and/or decorative top-coat are known to provide inadequate blister resistance under some conditions of service. Paint systems of improved humidity performance are now disclosed in which the undercoat is modified by the addition to it of discrete, porous, polymer particles to provide the dry undercoat film with a water absorption of 5–65% by weight. The paint system as a whole must be a non-convertible coating.

3,740,256
SURFACE FLUORINATED HYDROGEN CONTAINING MATERIAL AND PROCESS FOR MAKING
Jean P. Manion, Milwaukee, and Daniel J. Davies, Mukwonago, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Original application Aug. 1, 1969, Ser. No. 846,767, now Patent No. 3,674,667. Divided and this application Sept. 22, 1971, Ser. No. 188,671
Int. Cl. C23c *11/00*
U.S. Cl. 117—93.1 CD 2 Claims

A manufactured material and a process for making the material is disclosed. The manufactured material is a hydrogen containing substance having a fluorinated surface and in which hydrogen atoms, which may be present in hydroxyl radicals attached to a carbon atom chain,

have been replaced in the surface of the material by fluorine atoms or radicals, and with such fluorinated surface of the material containing at least about 2 micrograms of such fluorine per cm.² of surface area. The process for making such a material includes the steps of selecting a substrate containing hydrogen atoms which may be present in hydroxyl radicals attached to a carbon atom chain, selecting a gas containing fluorine atoms or radicals, placing the selected substrate between electrodes in a flowing atmosphere of the selected gas at subatmospheric pressure, and subjecting the substrate to an electroless discharge of at least about 0.2 kwh./yard² to chemi-



cally activate both the surface of the substrate and the gas, and exchange the fluorine atoms or radicals for surface hydrogen atoms or radicals to produce a material with a surface, which compared to the substrate before this process treatment, is more water repellent (without sealing pores), is more corrosion and soil resistant, more chemically inert, and more like the relatively expensive polytetrafluoroethylene. When the substrate is a material having a relatively inert surface, such as polyethylene, the process is disclosed as including an initial treatment step that involves ion bombardment of the substrate in helium gas to activate the surface before the surface is treated in the fluorine containing gas.

3,740,257

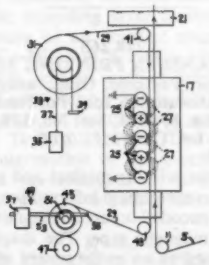
PROCESS AND APPARATUS FOR DIELECTRIC HEAT DRYING ELASTOMER COATED GLASS FIBERS

Alfred M. Roscher, Allison Park, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation of application Ser. No. 654,866, July 20, 1967. This application Sept. 21, 1971, Ser. No. 182,330

Int. Cl. F26b *3/34*

U.S. Cl. 117—93.1 DH **4 Claims**



A method and apparatus for preventing particles of elastomer solids from being deposited on the electrodes of a dielectric heater during the process of dielectrically drying an aqueous elastomeric coating composition on strands of glass fibers. A barrier of glass cloth or the like is disposed between the elastomer coated glass fiber strands and the electrodes of the dielectric heater to preclude depositing particles of elastomer solids on the electrodes of the dielectric heater and to thereby preclude an "arc-out" of the dielectric drying process from occurring.

3,740,258

RESINOUS ENCLOSURE MEMBERS RENDERED IMPERMEABLE BY SULFONATION

Wilhelm E. Walles, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of applications Ser. No. 696,702, Jan. 10, 1968, and Ser. No. 770,848, Oct. 25, 1968. This application Apr. 12, 1971, Ser. No. 133,376

The portion of the term of the patent subsequent to Oct. 19, 1988, has been disclaimed

Int. Cl. B44d *1/02*

U.S. Cl. 117—94 **37 Claims**

Resinous enclosure members surface sulfonated to a degree such that from about 0.015 to about 50.0 milligrams of sulfur trioxide equivalents reside on a square centimeter of surface thereof effectively contain hydrocarbons and other organic materials. The sulfonated enclosure members are rendered substantially impervious to the penetration of various solvents and vapors by this degree of surface sulfonation. As a result of such treatment, these enclosure members are useful to hold, retain, or transport hydrocarbon solvents, perfumes, fuels, etc., and thus can be used as gasoline tanks, perfume bottles, plastic hoses, industrial containers, and the like.

3,740,259

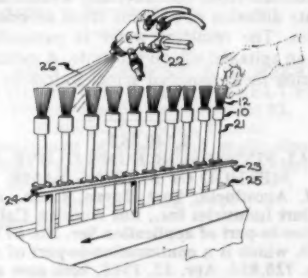
MASKING THE CLOSEABLE AREA OF A CONTAINER DURING THE COATING OF THE CONTAINER

David G. Carl, 6109 Sylvan Green, Sylvania, Ohio 43560; and Richard C. Kietzman, 4306 Harris; and William A. Knapp, 2619 Thoman Place, both of Toledo, Ohio 43613

Original application Nov. 24, 1969, Ser. No. 879,081. Divided and this application Sept. 7, 1971, Ser. No. 178,303

Int. Cl. B05b *13/02*

U.S. Cl. 117—94 **3 Claims**



Method for masking the closure attaching portion of a container to prevent the coating of said closure attaching portion while permitting the spreading of a coating material over the remaining surface of the container. The method comprises nesting the closure attaching portion of the container into a masking chuck, rotating the chuck about its vertical axis and laterally moving the chuck in a straight line through a coating spray.

3,740,260

DISPENSING GUN FOR FIBER ROVINGS AND CEMENTITIOUS MATERIALS

James B. Winn, Jr., Wimberly, Tex., assignor to The Archilithic Co., Dallas, Tex.

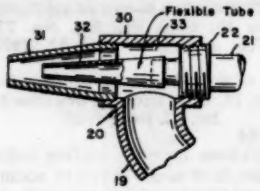
Continuation of application Ser. No. 660,149, July 17, 1967, which is a continuation of application Ser. No. 155,948, Nov. 30, 1961, both now abandoned. This application Apr. 1, 1971, Ser. No. 130,480

Int. Cl. B44d *1/02*

U.S. Cl. 117—104 R **4 Claims**

Glass fiber strands are deposited on a receiving surface coated with a cementitious material by forcefully pro-

jecting the fluid coating material from a projection source while entraining the continuous fiber strand in the coating material from within the material and propelling the strand and the coating material onto the receiving surface.

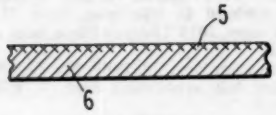


3,740,261

MODIFIED CZOCHRALSKI GROWN SPINEL SUBSTRATE BY SOLID STATE DIFFUSION

Stephen Ray Bolin, Hightstown, N.J., assignor to RCA Corporation

Filed Feb. 9, 1971, Ser. No. 113,972
Int. Cl. B44d *1/18*
U.S. Cl. 117—107.2 P **3 Claims**



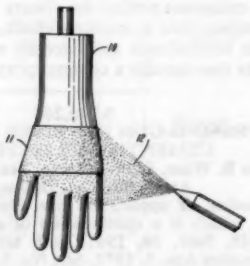
A modified single-crystal, magnesium aluminate spinel wafer is formed from commercially available spinel by a solid state diffusion of alumina from submicron alumina particles. The resultant wafer is particularly suited for use as an epitaxial silicon substrate. A method is given for producing these modified spinel wafers by solid state diffusion.

3,740,262

DUAL FINISH SURGEON'S GLOVE AND METHOD OF MAKING SAME

Armand J. Agostinelli, East Haven, Conn., assignor to Dart Industries Inc., Los Angeles, Calif.

Continuation-in-part of application Ser. No. 877,848, Nov. 18, 1969, which is a continuation-in-part of application Ser. No. 720,854, Apr. 12, 1968, both now abandoned. This application Aug. 17, 1971, Ser. No. 172,568
Int. Cl. B44d *1/02*
U.S. Cl. 117—94 **12 Claims**



A method for manufacturing a latex article particularly a latex surgeon's glove. The article has a powder attracting surface and a powder rejecting surface. The powder rejecting surface is free from stickiness and tackiness yet is not slippery. The method includes the steps of: depositing a latex film on a form for the article; curing the film and contacting the surface which is to be powder rejecting with a solution containing a predetermined number of parts per million of a halogen for a predetermined time.

3,740,263

PROCESS FOR THE PREPARATION OF MANUFACTURED ARTICLES

Rajindar K. Kochhar, Overland Park, Joseph W. Jones, Jr., Leawood, and Raymond M. Henry, Overland Park, Kans., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Continuation of abandoned application Ser. No. 740,979, June 28, 1968. This application Aug. 12, 1971, Ser. No. 171,374
Int. Cl. C03c *25/02*
U.S. Cl. 117—126 GR **2 Claims**

Polymer-coated glass fibers bearing a coating of an ethylene-acrylic acid copolymer are prepared by passing heated glass fibers through a freshly-prepared aqueous dispersion of an ammonium salt of an ethylene-acrylic acid copolymer. The coated glass fibers thus prepared are useful as a reinforcing agent for thermoplastic molding resins.

3,740,264

FIREPROOFING CELLULOSE WITH COMPLEXES OF HEAVY METAL SALTS OF ACID PHOSPHATE ESTERS

Charles Andrew Lynch, Jr., Severna Park, and Edward Francis Orwoll, Baltimore, Md., assignors to FMC Corporation, New York, N.Y.

No Drawing. Original application Mar. 27, 1970, Ser. No. 23,479. Divided and this application Dec. 15, 1971, Ser. No. 208,504
Int. Cl. C09k *3/28*
U.S. Cl. 117—136 **5 Claims**

Compositions which are water-soluble ammonia complexes of heavy metal salts of acid phosphate organic esters, the organic groups containing an average of at least three carbon atoms, are used in water solutions to produce weather-resistant flame-retarding treatments for wood and other cellulosic bodies. The organic moieties are preferably chlorinated or brominated to improve their flame retardance.

3,740,265

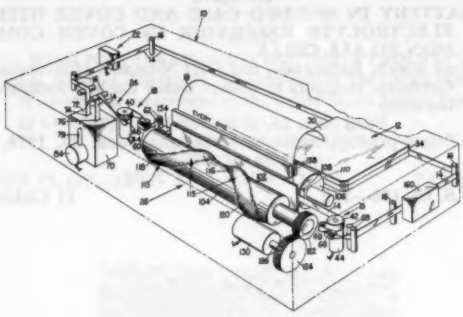
IMAGE TRANSFER PRINTING METHOD

Gilbert D. Springer, Portland, Oreg., assignor to United Medical Laboratories, Inc., Portland, Oreg.

Filed Mar. 8, 1971, Ser. No. 121,846
Int. Cl. H01f *10/00*
U.S. Cl. 117—235 **4 Claims**

An image transfer printing method and printer wherein character images representing information to be printed are magnetically encoded upon a magnetic medium or record such as a magnetic tape. The magnetic record is subsequently exposed to an environment of magnetizable particles wherein the particles adhere to the magnetized portions of the record and develop character images thereon. The magnetic record is then advanced to an image transfer station where a pressure plate or other suitable device associates the tape with a record sheet and the magnetizable particles are transferred to the record sheet forming printed characters. The images on the magnetic record can then be demagnetized or erased during the transfer operation to enhance transfer of the particles, and the character images formed on the record sheet can be fixed

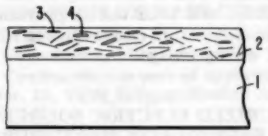
thereon to form a permanent copy. The information can be continuously encoded on the magnetic record and transferred to the record sheet a line at a time to form a record sheet with a multiline format.



3,740,266
MAGNETIC RECORDING MEDIUM

Goro Akashi and Masaaki Fujiyama, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation-in-part of abandoned application Ser. No. 751,566, Aug. 9, 1968. This application Nov. 25, 1970, Ser. No. 92,879
Claims priority, application Japan, Aug. 10, 1967, 42/51,370
Int. Cl. H01f *10/02*
U.S. Cl. 117—240 6 Claims



A magnetic recording medium comprising a support and a magnetic recording layer thereon, the layer comprising a mixture of an acicular magnetic alloy which may be a Fe-Co-Ni alloy, a Fe-Co alloy, a Co-Ni alloy, or a Fe-Ni alloy, and an acicular magnetic powder such as γ-Fe_2O_3, Co-containing γ-Fe_2O_3, CrO_2, or Fe_3O_4. Either the magnetic alloy or the magnetic powder may contain either Cu, Sb, Te, Mg, B or Be. The use of the mixture prevents the aggregation of the magnetic alloy particles and minimizes the reduction in magnetic flux density caused by the addition of other materials.

3,740,267
METHOD OF CLEANING APPARATUS USED IN PROCESSING POLYETHYLENE TEREPHTHALATE

John Christopher Haylock, Richmond, Va., assignor to Allied Chemical Corporation, New York, N.Y.

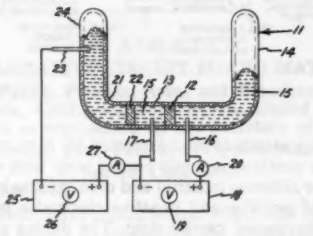
No Drawing. Filed Sept. 22, 1971, Ser. No. 182,901
Int. Cl. B08b *9/00*; C23g *5/02*
U.S. Cl. 134—10 8 Claims

Method of removing unwanted residues of polyethylene terephthalate from apparatus used in processing polyethylene terephthalate which involves washing the apparatus with a cleaning solvent comprising triethanolamine at a temperature of 150°–260° C. to form a solution of substantially all of the polyethylene terephthalate remaining in the apparatus. The cleaning process can be accelerated by the addition of a minor proportion of alkali metal hydroxide to the solvent.

3,740,268
METHOD OF CHARGING SODIUM-SULFUR CELL

Stephen P. Mitoff, Elnora, N.Y., assignor to General Electric Company

Original application Jan. 4, 1971, Ser. No. 103,521. Divided and this application Jan. 17, 1972, Ser. No. 218,403
Int. Cl. H01m *45/04*
U.S. Cl. 136—6 FS 3 Claims

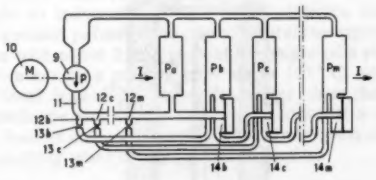


A sodium-sulfur cell is described which includes an anodic reaction zone, a cathodic reaction zone, a solid crystalline ion conductive electrolyte therebetween, and a third electrode positioned in the cathodic reaction zone and insulated electrically from a portion of the cathodic reaction zone. One type of third electrode for this cell has a metal mesh adjacent the solid electrolyte. A thin porous insulator is positioned on opposite surface of the metal mesh adjacent the cathodic reaction material. A method of charging a sodium-sulfur cell employing such a third electrode is described also.

3,740,269
PROCESS AND EQUIPMENT FOR REGULATING THE OUTPUT OF A SET OF FUEL CELLS

Pierre Patin, 58 Rue de Sevres 92, Boulogne-sur-Seine, France

Continuation-in-part of abandoned application Ser. No. 76,791, Sept. 30, 1970. This application Mar. 22, 1972, Ser. No. 237,006
Int. Cl. H01m *27/00*
U.S. Cl. 136—86 E 5 Claims



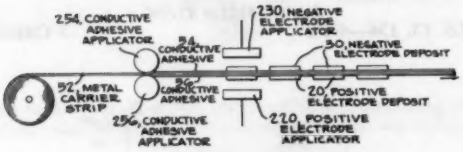
The output of fuel cells fed by a forced flow of each reactant dissolved or emulsified in a dilute electrolyte with a constant concentration is regulated by electrically connecting the cells in series and continuously supplying each electrolyte charged with the corresponding reactant to the first cell and supplying the other cells with each electrolyte with its reactant at a low rate of flow and progressively supplying said other cells in parallel at a relatively high rate of flow of each electrolyte with its reactant as soon as the loss of charge through said other cells reach predetermined values.

3,740,270

DUPLEX ELECTRODE CONSTRUCTION USING CONTINUOUS METAL CARRIER STRIP COATED ON BOTH SIDES WITH CONDUCTIVE ADHESIVE

John M. Bilhorn, Edgerton, Wis., assignor to ESB Incorporated

Filed Dec. 21, 1970, Ser. No. 100,268
Int. Cl. H01m 21/00
U.S. Cl. 136—111 11 Claims



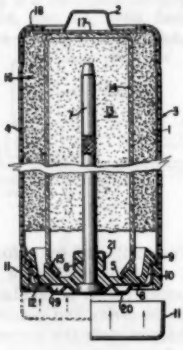
A duplex electrode is constructed by first coating both sides of a continuous metal carrier strip with electrically conductive adhesive material and then placing intermittent deposits of positive and negative electrodes on opposite sides of the coated carrier strip. The duplex electrode is then assembled into a multicell battery. The assembly preferably occurs while the duplex electrodes are structurally and electrically connected by the continuous carrier strip after which the carrier strip is subsequently cut between duplex electrodes to obtain structurally and electrically unconnected batteries. Alternatively, the carrier strip may be cut between duplex electrodes before those electrodes are assembled into multicell batteries. Preferably, the carrier strip is zinc, aluminum, or steel.

3,740,271

CYLINDRICAL DRY CELLS

Jean-Firmin Jammet, Poitiers, and Alfred Brych, Chasseneuil, France, assignors to Societe des Accumulateurs Fixes et de Traction (Societe Anonyme), Romainville, France

Filed Jan. 25, 1972, Ser. No. 220,647
Claims priority, application France, Jan. 25, 1971, 7102375; June 16, 1971, 7121897
Int. Cl. H01m 21/00
U.S. Cl. 136—107 30 Claims



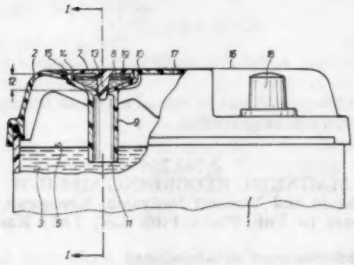
A cylindrical dry cell incorporating a metal container sheathed in plastic, includes a cover formed at one end of the sheath. The cover has substantially parallel grooves formed therein for receiving the ends of the metal container and the ends of the other electrode terminal, holding said ends in a permanently spaced apart relationship.

3,740,272

BATTERY IN MOLDED CASE AND COVER WITH ELECTROLYTE RESERVOIR IN COVER COMMON TO ALL CELLS

Emil Blaich, Barienrode, and Gert Niemann, Hildesheim, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Nov. 25, 1970, Ser. No. 92,782
Claims priority, application Germany, Jan. 29, 1970, P 20 03 968.3
Int. Cl. H01m 1/02, 7/00
U.S. Cl. 136—162 11 Claims



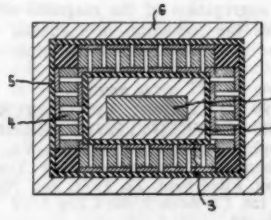
Battery in molded case with electrolyte reservoir in cover common to all cells. From the bottom of the reservoir tubes project downward dipping below the predetermined level of the electrolyte in each cell. Each tube is provided with a throttling device which can be shut-off tightly, and each cell is provided with a vent through which gas can escape during filing with electrolyte and during charge.

3,740,273

MINIATURIZED ELECTRIC SOURCE HAVING A RADIOACTIVE HEAT SOURCE

Karl Adler, Grenchen, and George Ducommun, Feldbrunnen, Switzerland, assignors to Biviator S.A., Grenchen, Switzerland

Filed Jan. 19, 1970, Ser. No. 3,927
Claims priority, application Switzerland, Jan. 31, 1969, 1,518/69
Int. Cl. C21d 7/00
U.S. Cl. 136—202 7 Claims



A miniaturized electric source having a radioactive heat source and thermoelements enclosed by insulating layers,

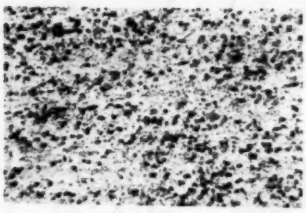
said thermoelements being constituted by thin metallic layers on tape carriers of insulating material, such carriers being wound or folded to form a compact unit comprising a high number of thermoelements.

3,740,274

HIGH POST-IRRADIATION DUCTILITY PROCESS

Joe G. Y. Chow, Northport, N.Y., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Apr. 20, 1972, Ser. No. 246,046
Int. Cl. C21d *1/00, 7/02*
U.S. Cl. 148—12 7 Claims



A method of treating certain stainless steels to improve the ductility characteristics after irradiation at high temperatures involving working at room temperatures or lower to a 90 percent reduction of area followed by low temperature recrystallization annealing.

3,740,275

GALVANIZING PREFLUX WASH COMPOSITION

Sidney M. Heins, Chicago, Ill., assignor to Thiem Corporation, Milwaukee, Wis.

No Drawing. Continuation-in-part of application Ser. No. 128,551, Mar. 26, 1971. This application Aug. 6, 1971, Ser. No. 169,846
Int. Cl. B23r *35/34;* C22b *9/10;* B32b *15/18*
U.S. Cl. 148—26 5 Claims

An aqueous preflux wash having the purpose of wetting a ferrous metal with a film to condition the surface in final preparation for non-fuming galvanizing in a molten zinc bath using a smokeless blanket flux according to my Pat. No. 3,244,551. The purpose of this preflux is not only to replace the conventional zinc ammonium chloride containing preflux material, which is fuming, but to eliminate all factors contributing to air pollution.

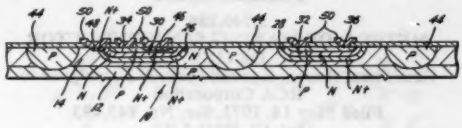
3,740,276

MULTI-COMPONENT SEMICONDUCTOR NETWORK AND METHOD FOR MAKING SAME

Kenneth E. Blan, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Original application Dec. 30, 1966, Ser. No. 606,198. Divided and this application Aug. 24, 1970, Ser. No. 66,646
Int. Cl. H01l *7/36*
U.S. Cl. 148—175 5 Claims

A process is disclosed for fabricating a multi-component network utilizing a body of high resistivity semiconductor material. The process includes selectively etching the semiconductor substrate and reforming it by epitaxial deposition of semiconductor material having different impurity concentration or conductivity type. The process provides improved isolation junctions between the



various components of the network enabling high switching speeds.

3,740,277

DEFLAGRATIVE CIRCUIT BOARD MATERIAL

Clyde J. Poulin, Phoenix, Ariz., and Theodore N. Bryla, Glendora, Calif., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Feb. 8, 1971, Ser. No. 113,704
Int. Cl. C06c *3/10*
U.S. Cl. 149—15 4 Claims

A self-destructive circuit board, which will deny knowledge to an enemy by destroying the actual hardware elements mounted thereon, made of a composition which burns at such high temperature that all metal and other solid components are completely destroyed.

3,740,278

HALOGENATED POLYETHYLENE COATED CRYSTALLINE EXPLOSIVE MIXED WITH SECOND EXPLOSIVE

Robert Sakreis, Jettenbach, and Helmuth Nolte, Waldkraiburg, Germany, assignors to Wasagchemie G.m.b.H., Munich, Germany

No Drawing. Filed Apr. 11, 1972, Ser. No. 243,080
Claims priority, application Germany, May 6, 1971, P 21 22 441.9
Int. Cl. C06b *19/02*
U.S. Cl. 149—11 8 Claims

Shaped high explosives prepared by coating a particulate crystalline explosive having a melting point of at least 203° C. with a halogenated polyethylene by mixing the crystalline explosive particles with an aqueous dispersion of discrete halogenated polyethylene particles having an average size of 0.1 to 5 microns to distribute over the crystalline explosive particles about 2 to 8 percent by weight of halogenated polyethylene particles, mixing the halogenated polyethylene coated crystalline explosive particles with about 2 to 8 percent by weight of a second explosive having a melting point up to 105° C. and having a Trauzl lead-block expansion higher than that of trinitrotoluene and compressing the mixture at a compressive load of at least 700 kp./cm.^{2} and a temperature above the melting point of the second explosive.

3,740,279

ETHYLENE COPOLYMER COMPOSITE PROPELLANT

Dewey R. Levering and Carl A. Lukach, Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Sept. 2, 1969, Ser. No. 854,754
Int. Cl. C06d *5/06*
U.S. Cl. 149—19 8 Claims

Composite propellant compositions having superior physical properties and performance characteristics con-

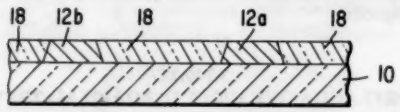
tain solid oxidizer and as the binder fuel, colloidally dispersible crystallizable copolymer of ethylene and 2 to 25 mole percent of at least one other monomer which is an α-olefin and/or a non-conjugated hydrocarbon diene.

3,740,280

METHOD OF MAKING SEMICONDUCTOR DEVICE

Ram Shaul Ronen, Kendall Park, N.J., assignor to RCA Corporation

Filed May 14, 1971, Ser. No. 143,493
Int. Cl. H01l *7/50*
U.S. Cl. 156—11 **3 Claims**



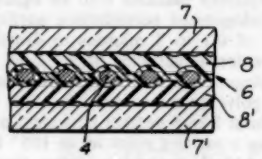
A semiconductor device is made by forming on the surface of an electrical insulating substrate a plurality of spaced regions of a semiconductor material. A masking layer is provided on the surface of each semiconductor region. A layer of an electrical insulating material is coated on the surface of the substrate between and around the semiconductor regions and over the masking layers on the semiconductor regions. A photosensitive resist is coated over the insulating layer. Openings are provided in the resist over each of the semiconductor regions using the masking layers to define the openings. The exposed portions of the insulating layer over each of the semiconductor regions are removed leaving the insulating layer between and around the semiconductor regions.

3,740,281

METHOD OF PRODUCING A LAMINATED GLASS PANEL INCORPORATING AN ELECTRICAL HEATING WIRE ASSEMBLY

Yasubaru Fujiwara, Kanagawa, Japan, assignor to Nippon Safety Glass Co., Ltd., Kawasaki, Kanagawa, Japan

Original application Apr. 11, 1969, Ser. No. 815,435, now Patent No. 3,601,583. Divided and this application June 9, 1970, Ser. No. 57,019
Int. Cl. B32b *17/06;* H05b *3/10*
U.S. Cl. 156—99 **10 Claims**



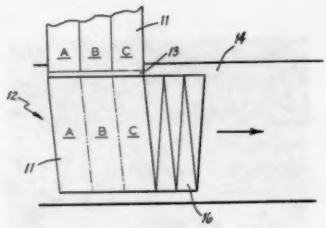
An electrical heating wire assembly for incorporation in a wired laminated glass panel, comprising an array of closely spaced parallel electric heating wires sandwiched between two sheets of films which are not adhesive to the cement to be used for bonding a pair of glass sheets forming said laminated glass panel and at least one of which has said cement coated on the inside face thereof to secure the individual electrical heating wires in positions integral therewith, said electrical heating wire assembly being used in such a manner that after removing the two sheets of films, the array of electrical heating wires carried by the cement layer is laid on the inside face of one of said pair of glass sheets and the other one of the glass sheets is laid on said array of electrical heating wires with the same cement interposed therebetween, whereby the two glass sheets are bonded together with the array of heating wires incorporated therein.

3,740,282

PROCESS FOR MAKING ARTIFICIAL LEATHER FROM LAPPED FIBROUS STRUCTURES

George A. Watson, Charlotte, N.C., assignor to Celanese Corporation, New York, N.Y.

Original application Jan. 3, 1967, Ser. No. 606,982, now abandoned. Divided and this application Feb. 16, 1971, Ser. No. 115,703
Int. Cl. B32b *31/12, 5/08*
U.S. Cl. 156—148 **1 Claim**



Making stratified lapped fibrous structures such as cross-lapped webs, or yarns, which have layers of different fibers by, for example, feeding a web having side-by-side bands of different fibers to a cross-lapping device.

3,740,283

METHOD OF MAKING A COMPOSITE PRODUCT OF STRENGTHENED, WATER-BLOWN, FLEXIBLE POLYURETHANE FOAM

Edwin Morgan Maxey, Stow, Ohio, assignor to The General Tire & Rubber Company

No Drawing. Filed July 31, 1970, Ser. No. 60,144
Int. Cl. B31c *13/00;* B32f *27/40;* B29d *27/00*
U.S. Cl. 156—162 **8 Claims**

In the field of flexible foams, the ability of the foam to support a given load (termed "Sac factor" in the foam art) is generally directly proportional to the foam's density. In certain applications such as in rug underlay the Sac factor requirement is set very high and is achieved by densifying an inexpensive rubber foam with fillers. This invention is a method of raising the Sac factor and load carrying capacity of water-blown flexible polyurethane foam by compression and heat treatment thereby allowing it to become competitive with conventional loaded rubber foam.

3,740,284

METHOD FOR MAKING TUBING

John R. Dillon, 209 Bayside Drive, Baltimore, Md. 21222

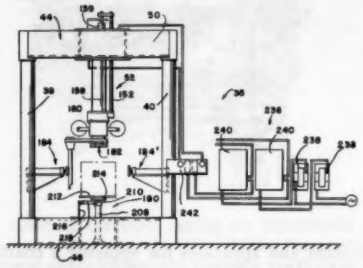
Filed May 24, 1971, Ser. No. 146,041
Int. Cl. B65h *81/00*
U.S. Cl. 156—171 **7 Claims**

An improved method of making a continuous reenforced plastic tubing wherein the tube is made on a mold being continuously formed at the same time by wrapping strips of sheet material about a mandrel at an angle to the elongated axis of the mandrel, the tube being formed by wrapping strips of reenforcing material of predetermined width about the mold at different locations along the mold and at the same angle as the wrapping of the mold strips upon the mandrel and in which the reenforcing material is saturated with a liquid resin to which has been added a catalyst of a nature to cause the liquid resin to harden within a predetermined period under certain specified conditions.

3,740,285
METHOD AND APPARATUS FOR FILAMENT WINDING ABOUT THREE AXES OF A MANDREL AND PRODUCTS PRODUCED THEREBY

William B. Goldsworthy, 2504 Novato Place, Palos Verdes Estates, Calif. 90274, and John A. Bunnell, 31186 Pedro St., South Laguna, Calif. 92677

Application Mar. 1, 1968, Ser. No. 709,676, now Patent No. 3,701,489, which is a continuation-in-part of application Ser. No. 591,387, Oct. 18, 1966, which in turn is a continuation of application Ser. No. 156,563, Nov. 29, 1961, both now abandoned. Divided and this application Apr. 23, 1970, Ser. No. 43,308
Int. Cl. B65h *81/02*
U.S. Cl. 156—173 17 Claims



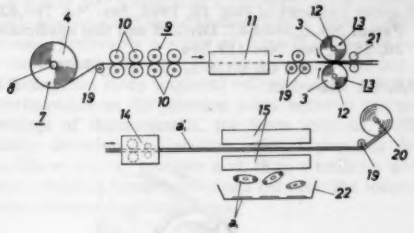
An apparatus and method for winding Fiberglas filament about three axes of a substantially rectangular mandrel. Five basic methods are employed where the filament feeding head is rotatable and reciprocative with respect to the mandrel and where the mandrel is rotatable and reciprocative with respect to the filament feeding head. Similarly, one of the elements can be rotated and the other thereof can be reciprocatable. The winding apparatus includes a supporting table and a series of clamps which are designed to automatically shift and rotate the mandrel to the second and third axis positions for winding about the three axes of the mandrel. A second embodiment of the apparatus employs mandrel tables located at 90° planes with respect to each other. The mandrel tables serve as supports and also as clamping members for changing the position of the mandrel. A plug-in programming mechanism is also provided for operating the apparatus on an automatic basis.

3,740,286
METHOD OF CONTINUOUSLY MANUFACTURING A PLURALITY OF SHEET RECORDS IN A PROCESS

Yasujiro Ban, 42 Tsurumaki-cho, Waseda, Tokyo, Japan

Filed Nov. 5, 1970, Ser. No. 87,141
Claims priority, application Japan, Nov. 17, 1969, 44/91,615
Int. Cl. B31f *1/00*
U.S. Cl. 156—219 8 Claims

A method of continuously manufacturing a plurality of sheet records in a process wherein a long length of transparent or opaque synthetic resin basic sheet material is moved in a direction for being processed in steps, in the first step said basic sheet material is printed on the surfaces, in the second step after having been dried said material is laminated with another long length of sheet material of the same quality as said basic sheet material on its surface or surfaces so as to form a film-like sheet to be seen on the printed surface through said sheet material thereon, in the final step, sound grooves are impressed on the surface or surfaces of the predetermined discs and



pressed for being stamped out and punched to form a sheet record coincidentally with the printed marks.

3,740,287
BONDING PLASTICS WITH PLASMA ARC RADIATION

Robert Milne Eichhorn, Westfield, N.J., assignor to Union Carbide Corporation, New York, N.Y.

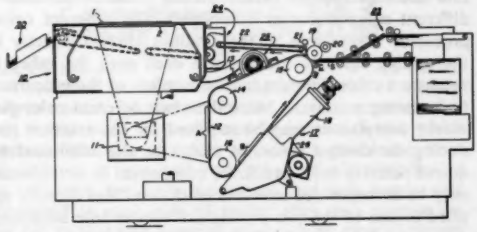
No Drawing. Filed June 10, 1971, Ser. No. 151,923
Int. Cl. B29c *19/02*
U.S. Cl. 156—272 13 Claims

Coated articles having an ethylene polymer coating strongly adhered to the base material are produced by exposing the coated base material to non-ionizing high intensity predominantly continuum light radiation having a source intensity of at least 350 watts per square centimeter steradian with less than 30 percent of the light radiated having a wavelength shorter than 4,000 angstroms units and at least 70 percent of the light radiated having a wavelength longer than 4,000 angstroms units. The exposed coated article can subsequently be heated to further improve adhesion.

3,740,288
METHOD OF PREPARING A TONER DISPENSER

Gopel C. Bhagat, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed June 11, 1971, Ser. No. 152,135
Int. Cl. B29c *19/06, 19/00*
U.S. Cl. 156—275 11 Claims



A toner dispenser is disclosed for use in an electrostatic printing apparatus. The dispenser member comprises a support shaft, a porous dispenser roll and an intermediate polymeric adhesive.

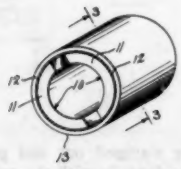
3,740,289
METHOD FOR MAKING ADHESIVE COATED FERRITE MAGNETS

Theodor von Alten, Grafton, Gerald L. Peebles, Cudahy, and James G. Battige, Menomonee Falls, Wis., assignors to Allen-Bradley Company, Milwaukee, Wis.

Original application Oct. 10, 1968, Ser. No. 766,420, now Patent No. 3,598,647. Divided and this application Feb. 26, 1971, Ser. No. 119,244

Int. Cl. B32b *31/00*; C09j *5/06*

U.S. Cl. 156—283 3 Claims



Ferrite magnets are shown with a coating of a dry, solid partially-cured adhesive, so that they can be attachd to other articles, such as magnetic steel members, by final cure of the adhesive coating upon the application of heat and pressure. There is also disclosed a method for applying the adhesive in which a layer of powdered dry blend of an adhesive composition is applied to a heated ferrite body, the adhesive melts and becomes partially cured, and the ferrite body is rapidly cooled to hold the adhesive in the partially cured state.

3,740,290
COLOR BOND SURVEILLANCE SYSTEM

David H. Kelsey, Van Nuys, and Charles W. Putzier and John M. McColgan, Los Angeles, Calif., assignors to R & G Sloane Manufacturing Company, Inc., Los Angeles, Calif.

No Drawing. Continuation-in-part of abandoned application Ser. No. 108,204, Jan. 20, 1971. This application Apr. 15, 1971, Ser. No. 134,422

Int. Cl. B32b *7/12*; C09j *5/04*

U.S. Cl. 156—310 27 Claims

A color bond surveillance system to ensure that adequate adhesive bonding has been accomplished between two surfaces where such adequate adhesive bonding requires the application of separate coatings to each of the mating surfaces, such as a primer coating in addition to the adhesive coating, wherein each of the required separate coatings applied to the mating surfaces contains a different color-precursor compound. The different color-precursor compounds in the coatings applied directly to the mating surfaces are reactive each with the other to produce a color different from the colors of the precursors and coating materials. More than two different color-precursor compounds may be required for the reaction producing the desired color. In such case the additional required reactive color-precursor component or components may be incorporated into one of the coatings directly applied to one of the two mating surfaces or into additional coatings, such as an adhesive coating, applied over the primary coating on one or both of the mating surfaces. After proper application of the separate coatings separately containing the color-developing additives and contacting of the so-treated surfaces to be bonded, the color-precursor components react to produce the desired color, thereby demonstrating proper adhesive installation.

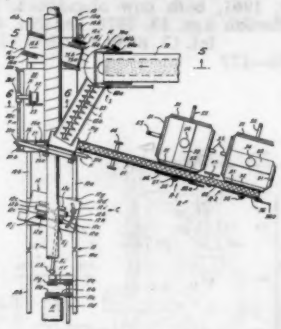
3,740,291
METHOD AND APPARATUS FOR APPLYING A COATING TO A TUBULAR MEMBER

James B. Mallard, 609 Ripple Creek, Houston, Tex. 77027

Continuation-in-part of abandoned application Ser. No. 761,151, Sept. 20, 1968. This application Jan. 20, 1971, Ser. No. 108,020

Int. Cl. B32b *31/06*; B65h *81/00*

U.S. Cl. 156—392 4 Claims



A method and apparatus for applying a coating under compression to a tubular member permits improved adhesion of the coating to the tubular member with improved consistency and strength of the applied coating.

3,740,292
TIRE BUILDING MACHINE

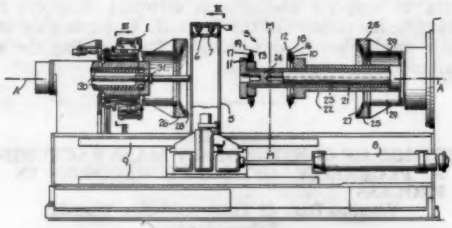
Jean Leblond, Compiegne, France, assignor to Uniroyal Englebert France S.A., Paris, France

Continuation of abandoned application Ser. No. 717,786, Apr. 1, 1968. This application Feb. 24, 1971, Ser. No. 118,551

Claims priority, application France, July 6, 1967, 113,452

Int. Cl. B29h *17/10*, *17/18*, *17/37*

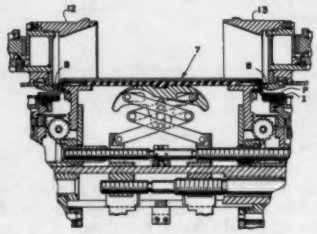
U.S. Cl. 156—396 28 Claims



A tire building machine, comprising a radially expansible and contractable, breaker-tread assembly building drum having a magnetized outer surface for retaining building alignment of metallic cord breaker plies during building of the assembly, a pair of variably spaced tire carcass support and shaping discs coaxial with but spaced from the building drum and providing for direct inflation of a first stage carcass supported thereon, a radially expansible and contractable and axially movable transfer ring for transferring breaker-tread assemblies from the drum to carcasses on the shaping discs, and movable, conical, shaping rings engageable with the outer sidewalls

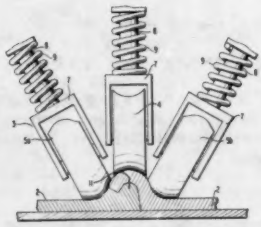
of the carcass during expansion of the same for limiting such expansion to a symmetrically centered pattern with respect to the breaker-tread assembly and the beads of the carcass.

3,740,293
TIRE BUILDING MACHINE
Thomas C. Jones, Salem, and Armindo Cantarutti, Akron, Ohio, assignors to NRM Corporation, Akron, Ohio
Filed May 17, 1971, Ser. No. 143,846
Int. Cl. B29h *17/16, 17/26*
U.S. Cl. 156—415 **31 Claims**



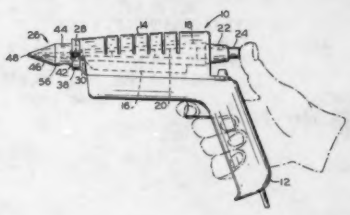
A tire building machine having an expandable drum with separate crown and shoulder drives for controlling the movement of the crown and shoulder portions to shape the plies to the full tire shape and maintain uniform spacing of the cords. The outboard end of the drum is supported by and latched to a tailstock tube for the transfer of axial forces from the tailstock to the drum during the building operation. Axial movement of the drum shoulders is adjustably controlled by interconnected adjustable stops mounted on the tailstock and main housing with piston cylinder assemblies resisting movement of the shoulders in different directions to control radial expansion and contraction of the shoulders during the building operation in cooperation with the shoulder drive.

3,740,294
APPARATUS FOR THE PRODUCTION OF WOUND PIPE OF THERMOPLASTIC SYNTHETIC MATERIAL
Michael Wienand, Siegburg, Klaus Jensen, Buisdorf, Franz Primessing, Mondorf, and Franz-Werner Alfter, Siegburg, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
Filed Sept. 3, 1970, Ser. No. 69,251
Claims priority, application Germany, Sept. 3, 1969, P 19 44 600.5
Int. Cl. B31c *13/00*
U.S. Cl. 156—429 **11 Claims**



An apparatus for producing a wound pipe of thermoplastic synthetic resin, wherein a profiled band of thermoplastic, having one edge provided with a tongue and the other edge thereof provided with a bead containing a groove for receiving said tongue, is wound spirally in the softened condition about a rotating mandrel whereby the tongue of a preceding winding lap is continuously received in the groove of the bead of the immediately subsequent winding lap, comprising a rotatable drum means, at least one pressure roll associated with said drum means and a means, preferably a series of take-off rolls, for removing the finished pipe from the drum means. The pressure roll comprises three sectional rolls having a contour which corresponds to the junction point between successive windings of thermoplastic, the three sectional rolls substantially covering the junction point. Using this device, a uniform contact pressure and, thus, a uniform and satisfactory welding bond is obtained between the tongue and groove thermoplastic windings.

3,740,295
APPARATUS FOR ADHERING A CUE TIP TO A BILLIARD CUE OR THE LIKE
Harold H. Brown, 1606 NE. 60th, Vancouver, Wash. 98665
Filed Dec. 21, 1970, Ser. No. 100,182
Int. Cl. B32b *31/00*
U.S. Cl. 156—499 **10 Claims**

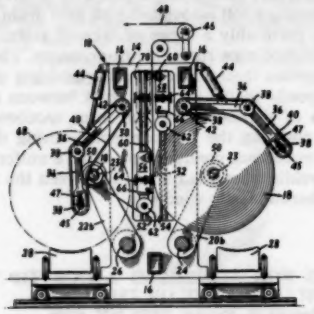


A tool for heating thermoplastic adhesive material to a plastic condition is provided by an elongated frustoconical nozzle by means of which plastic material may be deposited on the end of a billiard cue. The cue end is previously preheated by inserting the same into a recessed socket in the side of the heated nozzle. After deposition of plastic material on the cue end, a cue tip is positioned thereupon and centered employing a tip pilot by means of which pressure also may be exerted between the tip and the cue until the cue tip becomes adhered to the cue.

3,740,296
AUTOMATIC SPLICING ROLLSTAND
John J. McDonald, Park Ridge, N.J., assignor to John C. Motter Printing Press Co., York, Pa.
Filed May 10, 1971, Ser. No. 141,789
Int. Cl. B65h *19/08*
U.S. Cl. 156—504 **10 Claims**

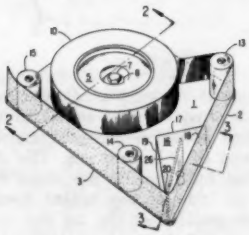
A rollstand for supplying a continuous web at substantially constant speed and tension from a succession of web supply rolls. The rollstand includes a frame which supports two pairs of spider arms, each pair being movably hinged at one end and provided with spindles at the other for rotatably supporting one web supply roll. Connected to each pair of spider arms is a control device for raising and lowering that pair of arms to permit the pick-up and discharge of its web supply roll. The rollstand further includes two drivebelt systems each of which is movable into and out of frictional engagement with one of the two web supply rolls held by the spider arms. These drivebelt systems are operative to rotate the contacted roll with a substantially constant circumferential speed. In addition, the rollstand is provided with

two splicing devices for pasting the running web supplied by a first roll to the web supplied by a second and for



cutting the web supplied by the first roll just prior to the moment when the first roll has expired.

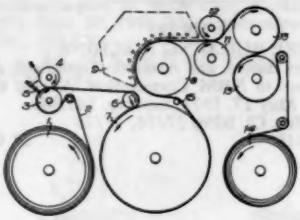
3,740,297
MASKING TAPE APPLICATOR
Alfred E. Vidinsky, 6245 Glenwood Drive, Mentor, Ohio 44060
Filed Dec. 29, 1971, Ser. No. 213,405
Int. Cl. B32b *31/00;* B44c *7/00*
U.S. Cl. 156—523 **5 Claims**



A manually operated applicator for transferring pressure sensitive masking tape from a supply roll onto an object with ease and precision. The applicator includes means for rotatably supporting the roll of tape and guide means for causing the tape to serially pass over one or two dispensing planes which intersect at an acute angle while being applied to an object. Disposed within the applicator is a tape cut-off blade, which upon operation is projected through the vertex of said planes and is then automatically retracted into the applicator.

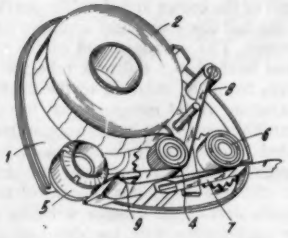
3,740,298
METHOD AND MACHINE FOR THE MANUFACTURE OF WALLPAPER
Derek G. Swindells, Billington, England, assignor to Emmerson & Renwick Limited, Accrington County of Lancaster, England
Filed Mar. 2, 1970, Ser. No. 15,580
Int. Cl. B32b *31/08, 31/20*
U.S. Cl. 156—553 **4 Claims**

A machine for the production of vinyl wallpaper in which a plastic paste such as P.V.C. is applied to one face of the web or substrate from a reservoir by a pair of coating rollers, one of the rollers being cleaned by a doctor blade, and passing the web over a heated drying drum from which it is stripped and passed over a warm-



ing roller before passing through embossing rollers and finally through cooling rollers.

3,740,299
HAND DISPENSER AND APPLICATOR FOR ADHESIVE TICKETS
Carl Schroter, Rommelshausen, and Eckhard Mulfinger, Stuttgart-Uhlbach, Germany, assignors to Heinrich Hermann, Stuttgart-Wangen, Germany
Filed Dec. 16, 1971, Ser. No. 208,641
Int. Cl. B44c *7/00*
U.S. Cl. 156—577 **12 Claims**

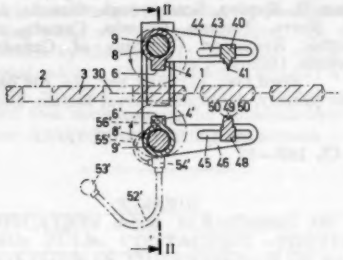


The rolling of the applicator of a dispensing device along a surface on which adhesive tickets are to be applied drives a mechanism that pulls a carrier tape, on which the adhesive tickets are supplied, from a supply roll, by causing a tension roll indirectly geared to the applicator roll to pull the carrier tape first around a take-off roll, also geared to the applicator roll, and then around the rounded edge of a guide vane, at which point the tickets carried on the tape are projected against the applicator roll and drawn under it. The tickets are separated from the carrier tape and then torn away from the succeeding tickets because the drive of the take-off and tension rolls is such that the peripheral velocity of the applicator roll is higher than the velocity of the tape in the neighborhood of the guide vane.

3,740,300
DEVICE FOR CONNECTING PARALLEL BANDS OR OPPOSITELY DISPOSED WALL PORTIONS OF A TUBE BY TRANSVERSE WELDING SEAMS
Hans Heinzer, Beringen, Switzerland, assignor to Schweizerische Industrie Gesellschaft, Neuhausen am Rheinfall, Switzerland
Filed June 3, 1971, Ser. No. 149,659
Claims priority, application Switzerland, June 8, 1970, 8,584/70
Int. Cl. B30b *15/34;* B32b *31/00*
U.S. Cl. 156—583 **9 Claims**

The invention relates to article packaging machines and particularly to a device for connecting the oppositely disposed walls of a flexible tube containing articles in

spaced relation by transverse welding seams produced by continuously moving welding dies between each two articles in the tube. The oppositely disposed welding dies are moved toward one another for pressing the opposite walls of the tube together by two spaced parallel crank shafts on the crank pins of which are arranged hubs to which the welding dies are fixedly attached. The welding dies are positively guided to perform vertical movements toward and away from the tube and have flat welding

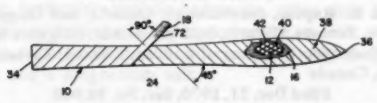


surfaces engaging the tube over a definite area to form a strip-like welding seam. At least one of the parallel crank shafts is adjustable to vary the transverse distance between the same, and the welding dies are so controlled that in addition to their movement toward and away from each other they perform also a translatory circular movement in vertical planes so that when the welding dies engage the tube they move with the same lengthwise a definite distance.

3,740,301
ELONGATED LIGHTWEIGHT STRUCTURE

Lindley Manning and Robert B. McKee, Reno, Nev., Hubert Zemke, Dublin, Calif., and Bruce M. Douglas, Sparks, Nev., assignors to The Tensor Corporation, Reno, Nev.

Continuation-in-part of abandoned application Ser. No. 55,768, July 17, 1970. This application July 14, 1971, Ser. No. 162,600
Int. Cl. B32b *5/12*
U.S. Cl. 161—58 **13 Claims**



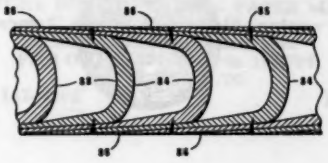
A lightweight ski constructed of a honeycomb core with its ribbon direction parallel to the length of the ski, first reinforcing fibers extending parallel to the ski length, and second reinforcing fibers disposed diagonally completely around the ski. The fibers are bonded to each other and to the honeycomb core.

3,740,302
SPRAY SPUN NONWOVEN SHEETS

John W. Soehngen, Berkeley Heights, N.J., assignor to Celanese Corporation, New York, N.Y.

Application Dec. 8, 1970, Ser. No. 96,041, now Patent No. 3,676,239, which is a continuation-in-part of application Ser. No. 580,994, Sept. 21, 1966, now Patent No. 3,607,588. Divided and this application May 1, 1972, Ser. No. 249,001
Int. Cl. B32b *5/12*
U.S. Cl. 161—59 **12 Claims**

A three-dimensional nonwoven fibrous assembly having an upper and lower surface indented to give a puckered effect and a method of producing this assembly by spray spinning directly into a zone at least partially occupied by convergent portions of a pair of moving collection

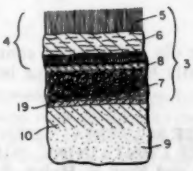


surfaces, having a series of spaced projections on their respective surfaces which constitute the primary collection loci.

3,740,303
ARTIFICIAL PLAYING SURFACE

Thomas Alderson, Wilmington, and James N. Newnam, Hockessin, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 11, 1971, Ser. No. 105,168
Int. Cl. E01c *7/00*
U.S. Cl. 161—67 **1 Claim**



An artificial playing surface is provided which comprises an artificial grass layer having in conjunction therewith a bonded batt comprising synthetic fibers, said batt having a density between 1.88 and 3.75 pounds per cubic foot and a thickness between ⅜ inch and ¾ inch. These in turn are adhered to a well-drained foundation. The artificial grass layer and batt composite comprise a mat suitable for the formation of the above-described surface.

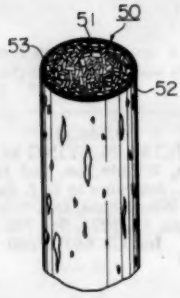
3,740,304
SYNTHETIC THREAD COMPOSED OF BUNDLED SPLIT TAPE

Munehiro Okumura, Eiji Umemura, and Tatsuaki Nishikawa, Otake, Nobuaki Nishikawa, Gifu, and Hiroyuki Shimoyama, Otake, Japan, assignors to Mitsubishi Rayon Company Limited, Tokyo, Japan

Filed Sept. 21, 1970, Ser. No. 73,777
Claims priority, application Japan, Oct. 20, 1969, 44/83,716; Oct. 25, 1969, 44/85,396
Int. Cl. D02g *3/06*; D04h *3/08*
U.S. Cl. 161—175 **17 Claims**

The unique synthetic thread of the present invention has a high filling density of 35 to 90% and consists of one or more thermoplastic split tapes of 5 to 300μ thickness. The split tape essentially consists of polyolefin and is composed of numerous fibrous unit strips mutually connected in a network. In the thread, the split tape is tightly bundled in such a manner that the fibrous unit strips located on the periphery portion of the bundle are mutually melt-adhered at point of contact to each other. The unique thread of the present invention is manufactured by passing the split tape through one or more heating dies while being in contact with the inside surface of the heating die heated at a temperature higher by at

least 10° C. than the melting point of the tape so as to melt-adhere the fibrous unit strips brought into contact



with the heating die at points of contact to each other and thus, to tightly bundle the tape into a thread body.

3,740,305

COMPOSITE MATERIALS BONDED WITH SILOXANE CONTAINING POLYIMIDES

John T. Hoback and Fred F. Holub, Schenectady, N.Y., assignors to General Electric Company

No Drawing. Filed Oct. 1, 1971, Ser. No. 185,904

Int. Cl. B32b *27/04, 17/06;* **C09j** *3/00*

U.S. Cl. 161—183 **15 Claims**

Composite materials are prepared by treating materials with a siloxane containing polyamic acid block copolymers and thereafter converting the polyamic acid to the polyimide state. The polyamic acid block copolymers are obtained from the reaction of an organic diamine, an organic tetracarboxylic dianhydride, and a polysiloxane diamine in a suitable organic solvent.

3,740,306

MULTIPLE-LAYER PACKAGING FILM WITH INTERMEDIATE PROTECTIVE LAYER

Paul O. Kosbab, Saukville, and Robert F. Roach and Paul A. Laumann, Milwaukee, Wis., assignors to Milprint, Inc., Milwaukee, Wis.

Filed Aug. 6, 1971, Ser. No. 169,710

Int. Cl. B65d *31/02;* **B32b** *15/06, 27/32*

U.S. Cl. 161—214 **25 Claims**

A packaging film capable of being formed into a collapsible container, such as a toothpaste tube, that includes layers of metal foil, casein admixed with an elastomeric compound, adhesive and heat sealable material joined together, and which is characterized as being able to withstand prolonged storage of fluoride-containing toothpastes without adverse delamination of the layers. The casein-elastomer layer acts as a protective layer that provides retardation of delamination of the other layers of the film when used in a package for fluoride toothpastes.

3,740,307

RECOVERY OF SODIUM CHLORIDE FROM WHITE PULPING LIQUOR

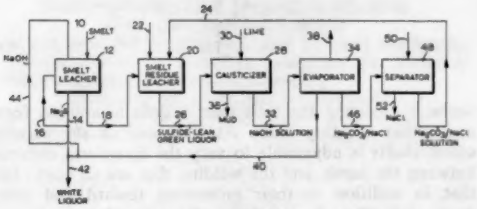
William H. Rapson, Scarborough, Ontario, and Douglas W. Reeve, Toronto, Ontario, Canada, assignors to Electric Reduction Company of Canada, Limited, Toronto, Ontario, Canada

Filed Dec. 21, 1970, Ser. No. 100,082

Claims priority, application Great Britain, Dec. 30, 1969, 63,174/69

Int. Cl. D21c *3/00, 11/12*

U.S. Cl. 162—17 **9 Claims**



White liquor is formed from a green liquor made up from a solid mass containing sodium carbonate and sodium chloride and an aqueous material. The sodium carbonate content is substantially converted to a white liquor containing sodium hydroxide, sodium chloride and uncausticized sodium carbonate. The white liquor is concentrated to deposit therefrom sodium carbonate and sodium chloride. An aqueous solution containing at least part of the deposited sodium carbonate and sodium chloride is formed and recycled as part of the aqueous material.

3,740,308

RECOVERY OF SODIUM CHLORIDE FROM SPENT PULPING LIQUORS

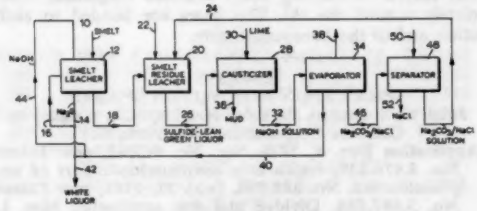
William H. Rapson, Scarborough, Ontario, and Douglas W. Reeve, Toronto, Ontario, both of Canada, assignors to Electric Reduction Company of Canada, Limited, Toronto, Ontario, Canada

Filed Dec. 21, 1970, Ser. No. 99,968

Claims priority, application Great Britain, Dec. 30, 1969, 63,173/69

Int. Cl. D21c *3/00, 11/12*

U.S. Cl. 162—17 **6 Claims**



A sodium sulfide and sodium chloride-containing smelt formed from waste pulping liquor is fractionated to separate the sodium sulfide from the sodium chloride.

3,740,309
PROCESS FOR TREATING AMMONIA-BASE WASTE SULFITE LIQUOR
Toivo Lahtvee, 7 Gatesview Ave., Scarborough, Ontario, Canada; Bal Krishan Sethi, 253 Wellesley St. E., Toronto, Ontario, Canada; and William Hubbard Stark, The Edgecliff, Apt. 1705, 2200 Victory Parkway, Cincinnati, Ohio 45206
No Drawing. Filed Sept. 22, 1971, Ser. No. 182,831
Int. Cl. D21c *11/02*
U.S. Cl. 162—36 14 Claims

The amount of calcium contained in ammonia-base waste sulfite liquor is reduced by precipitating the calcium as calcium sulfite and separating the precipitate from the remaining waste sulfite liquor solution. The precipitation is caused by dissolving in the waste sulfite liquor (1) additional calcium, (2) magnesium, and (3) a source of sulfite ions. By "additional" calcium is meant amounts greater than that contained in the ammonia-base waste sulfite liquor obtained from the pulping process.

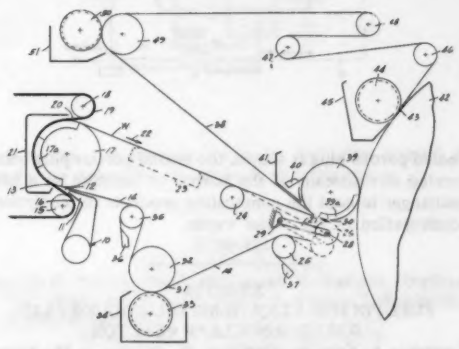
3,740,310
DELIGNIFICATION AND BLEACHING OF CELLULOSIC PULP CONTAINING PROTECTOR WITH OXYGEN IN THE PRESENCE OF ALKALI
Leon Smith, Petersfield, Springs, and Henry Hugo Myburgh, Valeriedene, Johannesburg, Republic of South Africa, assignors to South African Pulp and Paper Industries Limited, Johannesburg, Republic of South Africa, and l'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris, France
No Drawing. Filed Oct. 14, 1970, Ser. No. 80,739
Claims priority, application Republic of South Africa, Oct. 15, 1969, 69/7,269
Int. Cl. D21c *9/10*
U.S. Cl. 162—65 6 Claims

A method of delignifying and bleaching a chemical or semi-chemical cellulosic pulp comprising the steps of intimately admixing a flocculating type of protector which tends to produce coherent floc in the presence of an hydroxide other than ammonium hydroxide, with pulp under conditions which are substantially free of any hydroxide other than optionally ammonium hydroxide. The protector comprises up to 3% by weight of the pulp on a dry basis. The protector-containing pulp is subjected to the action of oxygen gas in the presence of an alkaline medium at elevated temperature and superatmospheric pressure. The alkaline medium is constituted by a substance, preferably sodium hydroxide, other than the flocculating protector which may comprise at least one substance selected from the group comprising magnesium oxide and a magnesium salt.

3,740,311
DELIGNIFICATION OF CELLULOSIC PULP WITH AMMONIA GAS FOLLOWED BY HEATING IN THE PRESENCE OF OXYGEN
Norman Liebergott, Chomedey, David W. Clayton, Hudson, and Raimbault M. A. T. de Montigny, deceased, by Madeleine C. de Montigny, Baie d'Urfe, Arthur de Gaspe Tache, Montreal, and Bernard W. Burgess, Senneville, Canada, executors, assignors to Pulp and Paper Research Institute of Canada, Pointe Claire, Quebec, Canada
No Drawing. Filed May 24, 1971, Ser. No. 146,297
Int. Cl. D21c *9/10*
U.S. Cl. 162—65 5 Claims

A procedure for the delignification of a cellulosic pulp which comprises first uniformly distributing ammonia gas in the moisture of a fluffed pulp of a consistency of about 15 to about 40% and then, in the absence of intermediate washing, the gaseous ammonia-treated pulp is heated in the presence of oxygen maintained at a pressure of about 4 to about 12 bars at a temperature of about 85 to about 135° C. for a time of about 10 to about 360 minutes to provide a pulp with a final pH of 9.6 to 10.4.

3,740,312
STRUCTURE FOR THREADING PAPER MACHINE
Dennis C. Cronin, Rockton, Ill., assignor to Beloit Corporation, Beloit, Wis.
Filed Oct. 1, 1971, Ser. No. 185,705
Int. Cl. D21f *2/00*
U.S. Cl. 162—306 11 Claims

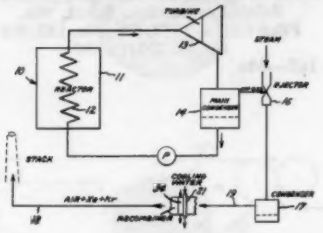


A device for threading a paper machine which includes a pair of closed loop carrier members mounted on a series of supporting rolls and arranged in such a way that a paper web may be transferred from one of the carriers to the other. One of the carriers may take the form of a moving wire onto which a paper web or the like is placed. The web and the wire then move continuously together until the combination of wire and web come in contact with the second carrier which may be made of felt or other similar fluid absorbent material. The two closed carrier loops are moved into proximity with one another such that the paper web traveling along with the first carrier may be readily transferred to the second carrier and moved onward to further machine processing stages. The felt carrier is provided with a roll which is rotatably mounted and which urges the felt carrier into contact with the wire carrier. The wire carrier has a roll which is rotatably mounted on a pivot arm which may be pivoted to move the associated wire carrier into and out of proximity with the adjacent felt carrier. The pivotally mounted roll is supported radially inwardly of the loop formed by the associated wire carrier such that pivotal movement of the roll will attempt to slacken the loop. A further roll is mounted exteriorly of the loop in such a way as to take up the slack which is developed by the pivotal action of the pivotally mounted roll.

3,740,313
BURNER-FLAME ARRESTER FOR BURNING OFF-GAS FROM A BOILING WATER REACTOR POWER PLANT
George E. Moore, Scotia, and Lee H. Tomlinson, Schenectady, N.Y., assignors to General Electric Company
Original application Oct. 29, 1968, Ser. No. 771,467, now Patent No. 3,660,041. Divided and this application July 1, 1971, Ser. No. 158,978
Int. Cl. G21c *19/00*
U.S. Cl. 176—37 4 Claims

A cooled porous plug device in combination with a continuous ignition source is used for burning off explo-

sive mixtures of contaminated radiolytic hydrogen-oxygen gas flow discharged from the steam turbine cycle of a boiling water nuclear power reactor. Optional use of a second



cooled porous plug is shown, the second porous plug being located downstream of the burner to function as a heat exchanger to cool the combustion products for controlled condensation of the water vapor.

3,740,314

FUEL PIN FOR A LIQUID-METAL-COOLED FAST-BREEDER NUCLEAR REACTOR

Lawrence A. Neimark, Elmhurst, Ill., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Jan. 28, 1972, Ser. No. 221,745
Int. Cl. G21c *3/18*
U.S. Cl. 176—68 **4 Claims**

An inherently safe fuel pin for a liquid-metal-cooled fast-breeder nuclear reactor is designed so that axial movement of molten fuel is enhanced and return of the molten fuel to the fuel zone is prevented if a sudden reactivity insertion causes melting of the fuel. The fuel pin includes an annular upper

blanket separated from a solid fuel zone by a conical nozzle the upper nose of which is welded into a grid plate which extends across the fuel pin and supports the annular upper blanket. Molten fuel is ejected into the central opening of the annular blanket through the conical nozzle which also prevents molten fuel from reentering the fuel zone.

3,740,315

PROCESS FOR THE REACTION AND SEPARATION OF COMPONENTS UTILIZING A LIQUID SURFACTANT MEMBRANE AND AN ENZYME CATALYST

Norman N. Li, Edison; Raam R. Mohan, Berkeley Heights, both of N.J., and Donald R. Brusca, Falls Church, Va., assignors to Esso Research and Engineering Company, Linden, N.J.

Filed May 7, 1971, Ser. No. 141,367
Int. Cl. C12b *1/00*
U.S. Cl. 195—2 **60 Claims**

Components of a feedstream are reacted and separated by a liquid membrane process which utilizes an enzyme as the catalyst for the reaction. The enzyme may be present in the feedstream, solvent, or liquid membrane phase; preferably the enzyme will be in an aqueous phase. In a preferred embodiment, an aqueous feedstream, containing phenol, is contacted with a liquid surfactant membrane comprising a high molecular weight isoparaffin and sorbitan monooleate surrounding an aqueous interior phase comprising polyphenol oxidase, whereby the phenol permeates the liquid surfactant membrane and is oxidized in the interior phase.

3,740,316

HYDROLYSIS OF STEROIDAL 21-CARBONATES

Hershel L. Herzog, Glen Ridge, Lois Weber, Springfield, and Elliot L. Shapiro, Cedar Grove, N.J., assignors to Schering Corporation, Bloomfield, N.J.

No Drawing. Filed Jan. 27, 1971, Ser. No. 110,340
Int. Cl. C07c *167/00*
U.S. Cl. 195—51 R **12 Claims**

This invention relates to a process for the enzymatic hydrolysis of a C–21 carbalkoxy steroid of the pregnane series by pancreatin, and provides a means for preparing 21-hydroxy-17α-acyloxy corticosteroids from 21-carbalkoxy-17α-acyloxy corticosteroids.

3,740,317

DEGRADATION OF SIDE CHAIN IN SAPOGENINS

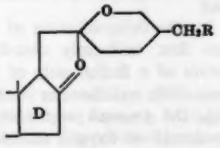
Eiji Kondo, Ikeda, and Takashi Mitsugi, Takaishi-cho, Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

No Drawing. Application Sept. 2, 1969, Ser. No. 854,769, now Patent No. 3,665,022, which is a continuation-in-part of abandoned application Ser. No. 597,216, Nov. 28, 1966. Divided and this application Feb. 16, 1972, Ser. No. 226,970
Claims priority, application Japan, Nov. 26, 1965, 40/72,771
Int. Cl. C07c *167/18*
U.S. Cl. 195—51 G **15 Claims**

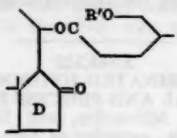
Androstane derivatives wherein the D ring is as follows:

=X being =O or

are obtained by the degradation by the action of a fungus of the Fusarium genus of the side chain of a steroidal sapogenin of the partial formula



or



wherein R is a hydrogen atom or OR' group and R' is a hydrogen atom or an enzymatically acceptable acyl group. The androstane derivatives are useful as intermediates for preparing a wide variety of androstranes and estranes, including testosterone, estrone, estradiol, etc. in per se known manner.

3,740,318

COMPOSITION OF MATTER AND PROCESS

Bruce W. Churchill, Comstock Township, Kalamazoo County, Robert Steel, Kalamazoo, and David R. Buss, Portage, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Feb. 19, 1971, Ser. No. 117,056
Int. Cl. C12d *13/06*
U.S. Cl. 195—65 **9 Claims**

A microbiological process for preparing alkaline protease using asporogenous bacteria of the genus Bacillus. This process produces protease with substantially no viable bacterial spores. The protease enzyme is useful as an additive to detergents.

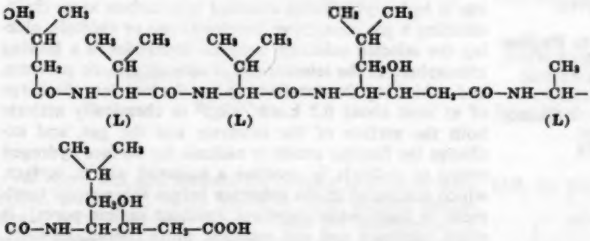
3,740,319

BIOLOGICALLY ACTIVE SUBSTANCE, PEPSTATIN AND PRODUCTION PROCESSES THEREOF

Hamao Umezawa and Tomio Takeuchi, Tokyo, Takaaki Aoyagi, Fujisawa, and Masa Hamada, Kenji Maeda, and Yoshiro Okami, Tokyo, Japan, assignors to Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai, Tokyo, Japan

Filed May 14, 1970, Ser. No. 37,165
Claims priority, application Japan, June 13, 1969, 44/46,166
Int. Cl. C12d *13/02*
U.S. Cl. 195—80 R **5 Claims**

A process for the production of pepstatin having the following structure:



which comprises cultivating a strain or Streptomyces producing pepstatin in a nutrient medium under aerobic condition until substantial activity to inhibit pepsin is imparted to said cultured medium and recovering said pepstatin from said cultured medium.

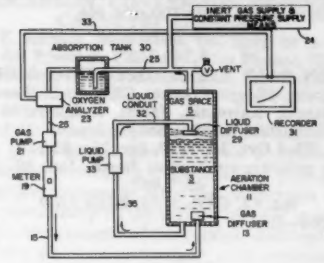
3,740,320

APPARATUS AND METHOD FOR MEASURING THE AMOUNT OF GAS ABSORBED OR RELEASED BY A SUBSTANCE

Robert M. Arthur, 344 Potomac Ave., Terre Haute, Ind. 47803

Filed Jan. 25, 1971, Ser. No. 109,256
Int. Cl. C12k *1/00*
U.S. Cl. 195—103.5 R **10 Claims**

This invention relates to an apparatus and method for measuring the amount of gas absorbed or released by a substance and in particular for measuring the biological activity of bacterial cultures. The apparatus and method



are useful, for instance, in water pollution control in studies to determine the strength of waste water.

3,740,321

CELL PROPAGATOR

Joseph F. Pagano, Paoli, and Joseph R. Valenta, Strafford, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

Filed Apr. 15, 1970, Ser. No. 28,799
Int. Cl. C12k *9/00*
U.S. Cl. 195—127 **6 Claims**

A cell propagator for artificially growing animal cells in in monolayer cultures comprises a plastic roller vessel containing a porous mass of plastic providing the growth surface. The cell propagator may, under appropriate conditions, be considered disposable. A fluid-tight seal is provided, allowing pH monitoring, feeding, aeration, sampling and harvesting through probes while the vessel is rotating.

3,740,322

RECOVERY OF DITRIMETHYLOLPROPANE BY VACUUM DISTILLATION AND RECRYSTALLIZATION

Yasuo Wada, Ikeda, and Katsumi Ishihara, Hirakata, Japan, assignors to Koei Chemical Co., Ltd., Osaka, Japan

No Drawing. Filed Nov. 17, 1970, Ser. No. 90,424
Claims priority, application Japan, Nov. 29, 1969, 44/96,118
Int. Cl. C07c *41/12*; B01d *3/10*
U.S. Cl. 203—48 **3 Claims**

The present invention relates to a process for recovering ditrimethylolpropane from the bottom residue obtained in the production of trimethylolpropane from n-butyraldehyde and formaldehyde in the presence of an alkaline catalyst, which process involves subjecting the

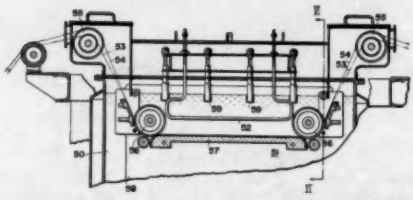
bottom residue remaining after vacuum distilling the trimethylolpropane from the resulting reaction mixture to steam distillation with superheated steam under a reduced pressure to obtain a distillate containing ditrimethylolpropane. The optimum temperatures for carrying out such a distillation are 160–220° C., and the preferred pressure range is 30–100 mm. Hg.

3,740,323

MOLTEN SALT ELECTROPLATING METHOD

Akira Miyata, Hideyo Okubo, Chikayoshi Tomita, and Akio Suzuki, Kawasaki, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 26, 1970, Ser. No. 83,714
Claims priority, application Japan, Jan. 30, 1970, 45/7,967
Int. Cl. C23b *5/56*; B01k *3/00*
U.S. Cl. 204—25 1 Claim



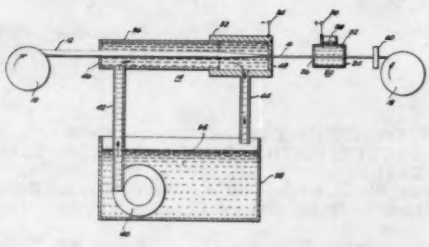
Method and apparatus for electroplating a plurality of articles such as bolts, nuts, rivets, machine screws, and the like, in a molten salt bath wherein the articles are located in a spaced relationship on a cathode member in the bath. The articles are in line or face electrical contact with the cathode member and are caused to rotate on the cathode member. Preferably, relative movement is imparted between the cathode member and a holding means for the articles to cause the rotation of the articles relative to the cathode member.

3,740,324

MAGNETIC WIRE ELECTROPOLISHING PROCESS IMPROVEMENT

Tommy G. Lesher, Fullerton, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Jan. 29, 1971, Ser. No. 110,918
Int. Cl. C23b *3/06*; B01k *3/00*
U.S. Cl. 204—129.7 7 Claims



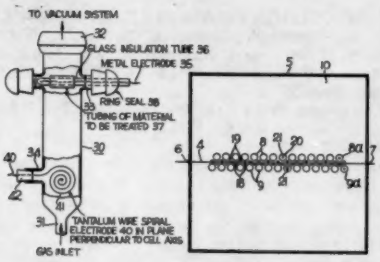
A process is disclosed for improving the surface finish quality of relatively small diameter magnetic storage wire produced by drawing relatively large diameter raw stock wire through successive diameter reducing dies. An improvement in the quality of the wire is obtained by electropolishing the wire to reduce the size and density of surface blemishes which occur in the wire in the form of small holes and cracks. Appropriate electrolyte and apparatus for performing the electropolishing process is also disclosed.

3,740,325

SURFACE FLUORINATED HYDROGEN CONTAINING MATERIAL AND PROCESS FOR MAKING

Jean P. Manion, Milwaukee, and Daniel J. Davies, Mukwonago, Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Original application Aug. 1, 1969, Ser. No. 846,767, now Patent No. 3,674,667. Divided and this application Sept. 22, 1971, Ser. No. 188,672
Int. Cl. B01k *1/00*; C08f *47/22*
U.S. Cl. 204—169 6 Claims



A manufactured material and a process for making the material is disclosed. The manufactured material is a hydrogen containing substance having a fluorinated surface and in which hydrogen atoms, which may be present in hydroxyl radicals attached to a carbon atom chain, have been replaced in the surface of the material by fluorine atoms or radicals, and with such fluorinated surface of the material containing at least about 2 micrograms of such fluorine per cm.^{2} of surface area. The process for making such a material includes the steps of selecting a substrate containing hydrogen atoms which may be present in hydroxyl radicals attached to a carbon atom chain, selecting a gas containing fluorine atoms or radicals, placing the selected substrate between electrodes in a flowing atmosphere of the selected gas at subatmospheric pressure, and subjecting the substrate to an electrodeless discharge of at least about 0.2 k.w.h./yard^2 to chemically activate both the surface of the substrate and the gas, and exchange the fluorine atoms or radicals for surface hydrogen atoms or radicals to produce a material with a surface, which compared to the substrate before this process treatment, is more water repellent (without sealing pores), is more corrosion and soil resistant, more chemically inert, more like the relatively expensive polytetrafluoroethylene. When the substrate is a material having a relatively inert surface, such as polyethylene, the process is disclosed as including an initial treatment step that involves ion bombardment of the substrate in helium gas to activate the surface before the surface is treated in the fluorine containing gas.

3,740,326

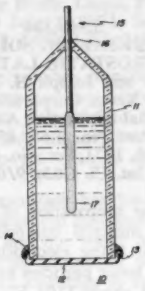
CHLORIDE SELECTIVE ELECTRODE

Willard T. Grubb, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed June 18, 1971, Ser. No. 154,401
Int. Cl. G01n *27/46*
U.S. Cl. 204—195 M 8 Claims

An anion-selective electrode has an open ended non-ion-selective tube, an anion-selective nylon disc sealed to one open end of the tube, a silver wire with a silver

chloride portion positioned within the tube, a chloride solution within the tube and in contact with the silver chloride portion of the silver wire, a closure over the



opposite end of the tube with an aperture therein, and a portion of the silver wire extending through the aperture in the closure to the exterior of the tube.

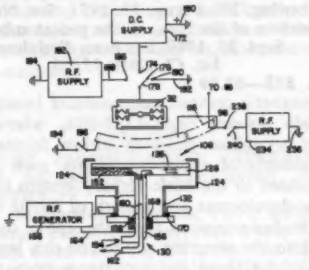
3,740,327
SPUTTER COATING APPARATUS WITH SHROUDING MEANS

George C. Lane, Danbury, Cyril A. Cartwright, Monroe, and Keith W. Elmslie, Madison, Conn., assignors to Warner-Lambert Company, Morris Plains, N.J.

Original application June 3, 1969, Ser. No. 829,906. Divided and this application Nov. 5, 1971, Ser. No. 196,054

Int. Cl. C23c *15/00*

U.S. Cl. 204—298 **9 Claims**



An apparatus and method for coating articles or substrates, particularly razor blades or other cutting instruments, in which means are provided for establishing a radio frequency alternating electrical field between electrodes within a vacuum chamber for sputtering a coating from a target having the coating material thereon to the article or substrate to be coated. The described apparatus includes means for providing preliminary cleaning of the substrate as well as the target before coating, such cleaning operation being capable of operating in any one of several different operational modes. Preferably, the substrate is first cleaned by so-called reverse sputtering, then protected against contamination while the target is cleaned, with the substrate thereafter being exposed to coating by sputtering. In another embodiment, simultaneous substrate cleaning and deposition takes place, as the target and the substrate are maintained at different potentials while having radio frequency alternating voltages impressed thereon. The apparatus provides a means of performing these operations either simultaneously or in sequence on a plurality of articles at one or more stations without breaking the vacuum in the evacuated chamber, or allowing contamination of the article, substrate or target between cleaning and coating operations.

3,740,328
HYDROCARBON CONVERSION PROCESS AND CATALYST THEREFOR

Richard E. Rausch, Mundelein, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Mar. 17, 1969, Ser. No. 807,910

Int. Cl. B01j *11/08*; C10g *35/08*

U.S. Cl. 208—139 **11 Claims**

A catalytic composite comprising a combination of a platinum group component and a tin component with a porous carrier material is disclosed. The principal utility of the subject composite is in the conversion of hydrocarbons, particularly in the reforming of a gasoline fraction. A specific example of the catalyst disclosed is a combination of a platinum component, a tin component, and a halogen component with an alumina carrier material.

3,740,329
DISPERSION REMOVAL BY LIQUID MEMBRANE PROCESS

Norman N. Li, Edison, N.J., assignor to Esso Research and Engineering Company, Linden, N.J.

No Drawing. Filed Feb. 25, 1971, Ser. No. 119,005

Int. Cl. B01d *11/00*

U.S. Cl. 210—21 **10 Claims**

This invention relates to a method for removing a dispersed phase from an external phase by contacting said dispersed phase with surfactant membrane coated droplets, said surfactant membrane coated droplets comprising an interior phase coated with a surfactant membrane, whereby said dispersed phase interacts with the surfactant membrane, and removing said dispersed phase along with the surfactant membrane coated droplets. Preferably, the dispersed phase is either solid or liquid and the external phase is liquid. The surfactant membrane coated droplets are contacted with the dispersed phase by mixing the external phase with an emulsion comprising said surfactant membrane droplets dispersed in a continuous phase, said continuous phase being either miscible or immiscible with the external phase. This method is especially useful for removing suspended oil, clay, rust and other contaminants from waste water.

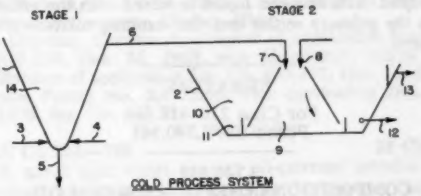
3,740,330
PROCESS FOR THE VOLUME REDUCTION OF SLUDGE FORMED IN THE SOFTENING OF WATER

John Stephen Kneale, New Monmouth, N.J., assignor to Sybron Corporation, Rochester, N.Y.

Filed June 21, 1971, Ser. No. 154,781

Int. Cl. C02b *1/02, 1/22*

U.S. Cl. 210—46 **8 Claims**



A process is described for the volume reduction of sludge precipitated during the chemical softening of water. The volume of sludge is reduced by pre-treating the raw water with lime or lime-soda ash in the presence of catalyst granules in an inverted, frusto-conical tank. The pre-treatment step is followed by a second step which comprises treating the water in a cold or hot

process water softener with additional chemical agents to remove remaining calcium hardness, magnesium hardness, silica and the like.

3,740,331
METHOD FOR PRECIPITATION OF HEAVY METAL SULFIDES

John R. Anderson, Cranbury, and Charles O. Weiss, Princeton, N.J., assignors to Sybron Corporation, Rochester, N.Y.

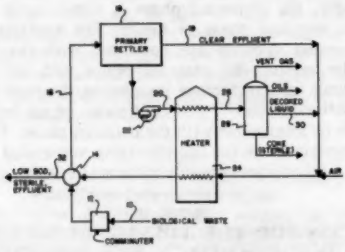
No Drawing. Filed June 23, 1971, Ser. No. 156,085
Int. Cl. C02b *1/20*
U.S. Cl. 210—53 **8 Claims**

Heavy metal pollutant ions are removed from an aqueous solution in a sulfide precipitation process that avoids generation of noxious amounts of hydrogen sulfide and the formation of soluble complexes of sulfide ions. Sulfide ion and a heavy metal ion that forms a sulfide having a higher equilibrium sulfide ion concentration than the sulfied of the heavy metal pollutant are added to the solution. The added heavy metal acts as a scavenger for excess sulfide. In some cases the added heavy metal and the heavy metal pollutant form co-precipitates which result in more complete removal of the pollutant ion than could be achieved by sulfide precipitation of the pollutant alone.

3,740,332
PROCESS FOR TREATING SEPTIC BIOLOGICAL WASTES IN ARCTIC CLIMATES

Edward L. Cole, Fishkill, and Howard V. Hess, Glenham, N.Y., assignors to Texaco Inc., New York, N.Y.

Filed Jan. 21, 1971, Ser. No. 108,493
The portion of the term of the patent subsequent to Apr. 21, 1987, has been disclaimed
Int. Cl. C02b *1/02*
U.S. Cl. 210—63 **4 Claims**



Septic biological wastes, including both commercial and industrial wastes produced in Arctic climates, are rendered sterile and suitable for discharge by being passed to a primary settler where solids contained therein are separated from clear effluent. The solids are coked in the liquid phase and the resulting coke is separated from the liquid. The decoked liquid is mixed with the effluent from the primary settler and the resulting mixture is air oxidized.

ERRATUM

For Class 210—18 see:
Patent No. 3,740,363

3,740,333
COMPOSITIONS USEFUL AS SPERM OIL SUBSTITUTES

Robert B. Hutchinson and Karl P. Kammann, Jr., Cincinnati, Ohio, assignors to Emery Industries, Inc., Cincinnati, Ohio

No Drawing. Filed June 28, 1971, Ser. No. 157,720
Int. Cl. C10m *1/42, 1/20*
U.S. Cl. 252—48.6 **14 Claims**

Compositions useful per se and in the sulfurized form as substitutes for sperm oil are provided. The compositions are blends of triglycerides and wax esters derived from predominantly C_{18-22} unsaturated acids and C_{10-18} saturated alcohols.

3,740,334
PROCESS OF PREPARING SOLID DEVELOPER FOR ELECTROSTATIC LATENT IMAGES

Burton B. Jacknow and Joseph H. Moriconi, Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

No Drawing. Original application Aug. 28, 1970, Ser. No. 68,019, now Patent No. 3,653,893. Divided and this application Nov. 8, 1971, Ser. No. 196,700
Int. Cl. G03g *9/02*
U.S. Cl. 252—62.1 **8 Claims**

A process for the preparation of a solid electrostatographic developer material comprising providing toner particles capable of being electrostatically coated on a carrier surface, the toner particles having a blocking temperature of at least about 110° F., a melt viscosity less than about 2.5×10^{-4} poise at temperatures up to about 450° F., the toner particles including a colorant, a thermoplastic resin, a solid additive having a melting point between about 115° F. and 270° F.; forming the toner particles into particles having a size range of up to about 30 microns, and thereafter tumbling the particles with from about 0.002 percent to about 20 percent by weight, based on the weight of the particles, of at least one solid, stable hydrophobic metal salt of a fatty acid until the metal salt is uniformly mixed with and is available at the external surfaces of the particles.

3,740,335
FERRIMAGNETIC CERAMICS

Edward A. Weaver, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

No Drawing. Filed Aug. 12, 1971, Ser. No. 171,344
The portion of the term of the patent subsequent to Sept. 26, 1989, has been disclaimed
Int. Cl. C04b *35/26*
U.S. Cl. 252—62.59 **8 Claims**

Ferrimagnetic ceramic compositions based on the ternary oxide system, Fe_2O_3-Li_2O-SiO_2. wherein the predominant crystalline phase is lithium ferrite ($LiFe_5O_8$). Minor amounts of nucleating agents, such as ZnO, can also be added to the basic ternary system to further enhance the developmet and growth of ferrite crystals. The ceramic bodies prepared from the above oxide systems, according to the sintering method of this invention, have rapid switching times and squareness ratios which make highly favorable materials for the manufacture of computer memory cores, radio coils, pulse transformers and other assorted electronic devices designed to operate at microwave frequencies.

3,740,336
HYDROGEN EMBRITTLEMENT INHIBITORS FOR ORGANIC COMPOSITIONS

Frank H. Langenfeld, St. Louis, and Wilson W. Overall, Warson Woods, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Dec. 23, 1970, Ser. No. 101,192
Int. Cl. C09k *3/18*
U.S. Cl. 252—70 **11 Claims**

Hydrogen embrittlement of steel in contact with aqueous solutions of organic compounds which hydrolyze to ammonia or amines is inhibited by incorporation in the aqueous organic solution a minor amount of a dimeric acid having from about 32 to 44 carbon atoms, e.g., dilinoleic acid, and an organo-phosphorus composition which is the reaction product of a monoalkyl phenol or a dialkyl phenol and phosphorus pentoxide.

3,740,337

STOP-LEAK AND ANTI-SLUDGE COMPOSITION AND METHOD OF USE IN STEAM BOILERS AND HOT WATER HEATING SYSTEMS

Norman A. Sommers, 326 Buttonwood Lane, Harbor Bluffs, Largo, Fla.

No Drawing. Filed July 2, 1971, Ser. No. 159,523
Int. Cl. C09k *3/02, 3/12*
U.S. Cl. 252—72 4 Claims

A stop-leak and anti-sludge composition and method of use in steam boilers and hot water heating systems comprised of 6 to 9% phenol, 5 to 8% catechu solids, 1.5 to 2.5% sodium meta-silicate, 8 to 10% wood fibres (hardwood), 0.3% to 1% silicone oil and 72 to 75% water, all by weight.

The foregoing composition has been found to be remarkable stop-leak agent and anti-sludge composition for use in steam boilers and hot water heating systems because of its coagulating properties when reacting with packing or other small openings in conduits exposed to the atmosphere. The composition dissolves sludge and also has anti-foam properties to prevent the build-up of foam in steam boilers, thereby preventing surging. The method of use of the present invention involves the aforesaid composition.

3,740,338

GUANIDINIUM SALTS AND FUNCTIONAL FLUIDS CONTAINING THEM

Nylen L. Allphin, Jr., Pinole, and Bruce W. Hotten, Orinda, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Continuation-in-part of abandoned application Ser. No. 17,913, Mar. 3, 1970. This application June 7, 1971, Ser. No. 150,759
Int. Cl. C09k *3/00*
U.S. Cl. 252—77 7 Claims

Phenoxide and naphthoxide salts of guanidine and hydrocarbon substituted guanidine are disclosed. Also disclosed are automatic transmission fluids and other functional fluids containing these salts as base reserve additives and anti-oxidants.

3,740,339

DETERGENT FORMULATION CONTAINING CURED 6-CARBOXY CELLULOSE AS A SEQUESTRANT

Donald M. MacDonald, Monroe, N.Y., assignor to International Paper Company, New York, N.Y.

No Drawing. Filed June 28, 1971, Ser. No. 157,616
Int. Cl. C02b *5/06;* C08b *15/04;* C11d *3/22*
U.S. Cl. 252—135 8 Claims

The elimination of phosphorus-containing compounds from detergent formulations, which cause water pollution, and their replacement with non-phosphorus-containing compounds of equal efficacy is achieved by employing the cured product of the reaction between 6-carboxy cellulose and an aqueous solution of a Lewis acid catalyst.

3,740,340

COMPOSITE INSULATORS FOR USE IN HOT HYDROGEN ENVIRONMENTS

Robert E. Riley and James M. Taub, Los Alamos, N. Mex., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Mar. 3, 1971, Ser. No. 83,572
Int. Cl. C09k *3/00*
U.S. Cl. 252—301.1 R 9 Claims

Insulators comprising composites of the composition MC—$M'O_2$ where M and M' may be Ti, Zr, Hf, V, Nb, Ta, Th, and U, and the metal carbide content may readily range from approximately 25 to 75 volume percent, have low thermal conductivities and adequate structural properties when maintained at temperatures as high as 2300° C. for as long as 16 hours in a flowing hydrogen environment. The designation MC—$M'O_2$ is a general one and does not necessarily imply a stoichiometric monocarbide and/or dioxide.

3,740,341

MANUFACTURE OF BIS(ALKOXYAMINOTRIAZINYLAMINO)-STILBENE - 2,2' - DISULPHONIC ACIDS

Peter John Brocklehurst, Eric Hemingway, and Malcolm James Wright, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed May 4, 1971, Ser. No. 140,298
Claims priority, application Great Britain, May 18, 1970, 23,954/70
Int. Cl. C07d *55/20*
U.S. Cl. 252—301.2 W 2 Claims

Optical brightening agents which are three component mixtures obtained by the reaction of bis(3 - chloro-5-alkoxytriazinylamino)stilbene-disulphonic acids with mixtures of optionally substituted mono- or dialkylamines and optionally substituted N-alkylarylamines. The agents separate from the hot reaction mixtures in the form of mobile liquids.

3,740,342

METHOD FOR SEPARATING CHEMICALLY-OXIDIZABLE PHOSPHOR PARTICLES FROM MIXTURES WITH ESSENTIALLY NONOXIDIZABLE PHOSPHOR PARTICLES

Richard Bibby Platt, Midland, and Bernard Beverly McCue, Christian Island, Simcoe, Ontario, Canada, assignors to RCA Corporation, New York, N.Y.

Filed July 26, 1971, Ser. No. 166,011
Int. Cl. C09k *1/12, 1/14, 1/20*
U.S. Cl. 252—301.65 10 Claims

To separate chemically-oxidizable phosphor particles, such as zinc sulfide and zinc-cadmium sulfide phosphor particles, from a mixture with essentially nonoxidizable phosphor particles such as yttrium oxysulfide phosphor particles, produce an aqueous slurry containing the mixture of particles and about 12 to 22 weight percent nitric acid. The nitric acid reacts with the oxidizable phosphor particles producing gas bubbles, which cause the oxidizable particles to rise and to float on the surface of the slurry. The floated particles are removed by decantation, skimming or other technique.

3,740,343

HIGH WATER CONTENT OIL-EXTERNAL MICELLAR DISPERSIONS

Stanley C. Jones and Wayne O. Roszell, Littleton, and Marvin A. Svaldi, Morrison, Colo., assignors to Marathon Oil Company, Findlay, Ohio

No Drawing. Continuation-in-part of application Ser. No. 829,739, Dec. 26, 1967, now abandoned, which is a division of application Ser. No. 693,177, Dec. 26, 1967, now Patent No. 3,497,006. This application Dec. 21, 1970, Ser. No. 100,398
Int. Cl. B01j *13/00*
U.S. Cl. 252—308 22 Claims

A novel high water content oil-external micellar dispersion (containing 55% to about 90% water) is obtained by mixing about 4 to about 40% hydrocarbon, at least 4% surfactant, about 0.01% to about 20% co-surfactant, about 55% to about 90% aqueous medium and about 0.001% to about 4% by weight of electrolyte, the above percents based on total volume unless otherwise specified. The dispersion is compatible with crude oil and useful, for example, in secondary and tertiary subterranean flooding operations to recover crude oil.

3,740,344

NONIONIC EMULSIFIERS FOR CONTROLLING THE SETTING RATE OF ANIONIC EMULSION

Richard L. Ferm, Lafayette, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Jan. 4, 1971, Ser. No. 103,847

Int. Cl. B01j *13/00*

U.S. Cl. 252—311.5 7 Claims

Bituminous emulsions useful in quick-setting slurry seal compositions are provided by combining (1) from 45 to 75 parts by weight bitumen, (2) from 0.3 to 2.0 parts by weight of an alkyl-aryl sulfonate, (3) from 0.2 to 1.0 part of a nonionic emulsifier, and (4) sufficient water to give a total composition having 100 parts by weight.

3,740,345

DYEING COMPOSITION

Wolfgang Berger, Gartenberg, Germany, assignor to Dr. Th. Bohme KG Chem. Fabrik, Gartenberg, Germany

No Drawing. Filed Aug. 26, 1970, Ser. No. 67,202

Claims priority, application Germany, Sept. 11, 1969, P 19 46 058.3

Int. Cl. B01f *17/00, 17/16*

U.S. Cl. 252—355 4 Claims

Dyeing and deaerating composition including a low ethoxylated fatty acid diamine, an alkali metal salt of dinaphthyl methane disulphonic acid, and a mixture of alkali metal salts of propoxylated monoesters and diesters of phosphoric acid.

3,740,346

TREATMENT OF GRANULATED FERTILISERS

Jacques Sarrade-Loucheur, Le Pecq, France, assignor to Blancs Mineraux de Paris, Paris, France

No Drawing. Filed July 27, 1970, Ser. No. 58,657

Claims priority, application France, July 31, 1969, 6926433

Int. Cl. C09k *3/22*

U.S. Cl. 252—384 10 Claims

This invention relates to the treatment of granulated fertilisers and has two objects, viz: prevention of massing or agglomeration of the granules on piling and, secondly, the prevention of the formation and flying away of dust. These objects are achieved by applying to the granules an aqueous solution comprising from 0.1 to 10% of an organic product adapted to retain the water of solution by the coating charge and from 0.1 to 10% of an anti-clumping agent. The anti-clumping agent may be a fatty amine or diamine or derivatives thereof and the organic retaining product is generally a vegetable gum, e.g. guar resin, starch which may be pre-gelled or esterified, gelatine, saccharose or a saccharose derivative.

3,740,347

ACID STABLE MOLECULAR SIEVE PRODUCTS

Harvey M. Rosen, Laurel, and Hanju Lee, Columbia, Md., assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed June 24, 1971, Ser. No. 156,503

Int. Cl. B01j *11/40*

U.S. Cl. 252—455 Z 10 Claims

Crystalline zeolites, synthetically produced or naturally occurring, can be stabilized against acid attack by treatment with an aqueous solution containing potassium silicate, sodium silicate, basic silica hydrosol, sodium tetraborate, sodium pyrophosphate or mixtures of these materials. Such treated zeolites are particularly more stable in gaseous acidic environments.

3,740,348

ESTERS OF CYANIC ACID

Ernst Grigat, Cologne-Stammheim, and Rolf Putter, Dusseldorf Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Application Feb. 12, 1968, Ser. No. 704,948, now Patent No. 3,553,244, which is a continuation of abandoned application Ser. No. 339,333, Jan. 22, 1964. Divided and this application Feb. 16, 1970, Ser. No. 14,845

Int. Cl. C07c *119/04*

U.S. Cl. 260—453 AL 1 Claim

Cyanic acid esters having the formula

$$R\{O—C\equiv N)_x$$

in which R is an alkyl or cycloalkyl radical containing an electron-attracting substituent, an aryl radical, a substituted aryl radical free from the simultaneous presence of sterically hindered substituents in both ortho positions to the corresponding —O—C≡N group or a heterocyclic radical, and x is a whole number from 1 to 6.

3,740,349

CATALYST FOR TREATING COMBUSTION EXHAUST GAS

John S. Negra, South Plainfield, and Abe Warshaw, Matawan, N.J., assignors to Chemical Construction Corporation, New York, N.Y.

No Drawing. Original application June 11, 1970, Ser. No. 45,576, now Patent No. 3,701,822. Divided and this application Nov. 5, 1971, Ser. No. 196,204

Int. Cl. B01j *11/08, 11/22*

U.S. Cl. 252—466 J 4 Claims

The exhaust gas from internal combustion engines or the like is treated to convert harmful or pollutant components such as nitrogen oxides, carbon monoxide and unburned hydrocarbons to innocuous compounds, by contacting the exhaust gas with a catalyst composition containing nickel, cobalt and manganese in catalytically effective amounts, deposited on a carrier such as alpha alumina.

3,740,350

NONCRYSTALLINE SOLID COMPOSITIONS EXHIBITING NEGATIVE INCREMENTAL RESISTANCE

Daniel J. Shanefield, 119 Jefferson Road, Princeton, N.J. 08540

No Drawing. Filed Aug. 6, 1971, Ser. No. 169,871

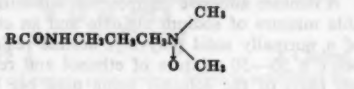
Int. Cl. H01b *1/02, 1/04;* H01c *7/10*

U.S. Cl. 252—512 3 Claims

Noncrystalline solid compositions of boron plus aluminum or of boron plus antimony or of silicon plus antimony. A simple bulk solid state diode exhibiting nonmemory switching behavior can be made comprising either said composition. As an applied voltage on the diode is increased, the voltage-current characteristic of the diode exhibits negative incremental resistance. The diode is stable only in its high resistance state, and the diode reverts to this state when the applied voltage is removed. The use of either said composition under severe operating conditions such as high current interrupted DC operation results in improved freedom from undesirable memory effects.

3,740,351
SOYA AMIDOPROPYLDIMETHYLAMINE OXIDE
Saul Kaplan, Teaneck, Kenneth W. Prodo, Westfield, and Edward G. Shay, Belle Mead, N.J., assignors to Millmaster Onyx Corporation, New York, N.Y.
No Drawing. Original application Aug. 12, 1969, Ser. No. 849,516, now abandoned. Divided and this application Mar. 22, 1971, Ser. No. 127,043
Int. Cl. C11d 7/32
U.S. Cl. 252—547 2 Claims

A composition and method for stabilizing the foam of anionic surface active agents by admixing the anionic surface active agent with an amido-amine oxide having the general formula:



wherein RCO is derived from the fatty acids in soya bean oil.

3,740,352
BOILER CLEANING AND LUBRICATING COMPOSITION, AND METHOD OF USE IN HOT WATER SYSTEM
Norman Sommers, 4110 Freeland Ave., Philadelphia, Pa. 19128
No Drawing. Filed Jan. 27, 1970, Ser. No. 6,295
Int. Cl. C11d 3/30
U.S. Cl. 252—548 2 Claims

A boiler cleaning and lubricating composition, and method of use in hot water system comprised of 13.5% polypropylene glycol (average molecular weight 2000), 4.8% tergitol nonionic XD (polyalkylene glycol ether), 3.5% acrylic emulsion copolymer (acrysol), 76% water, 1.5% silicone oil and .7 triethanolamine.

The aforesaid composition has been found to be a remarkable cleaner and rust inhibitor for use in hot water heating systems because it provides a protective film upon various parts of the system. However, the film is heat conductive and does not provide resistance to heat transfer, and this increases the heating characteristics of the system. The composition of the present invention also provides lubricating properties by the presence of polypropylene glycol and silicone oil.

ERRATUM

For Class 260—29.7 M see:
Patent No. 3,740,201

ERRATUM

For Class 260—453 AL see:
Patent No. 3,740,348

3,740,353
LOW DENSITY LOW SHRINK THERMOSET RESIN FOAMS
Frank D. Patrick, Freeport, and Daniel J. Najvar, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Nov. 9, 1970, Ser. No. 88,102
Int. Cl. C08g 53/08, 39/10
U.S. Cl. 260—2.5 N 24 Claims

Previous problems of shrinkage in the preparation of low density thermoset resin foams from thermo-settable water-in-resin emulsions containing certain nonionic surfactants may be eliminated or significantly reduced by incorporating into the emulsion hydrocarboaceous dimensional control agents. Useful resins include unsaturated polyester resins or polymerizable vinyl ester resins.

3,740,354
BOWLING BALL CORE CONTAINING SPONGE RUBBER CHIPS
Donald D. Dearmont, Stow, Ohio, assignor to Phillips Petroleum Company
Filed Jan. 25, 1971, Ser. No. 109,179
Int. Cl. C08d 9/02, 13/08; A63b 37/06
U.S. Cl. 260—2.5 H 7 Claims

A bowling ball comprising an exterior shell having a smooth outer rolling surface and an inner core, wherein said core comprises a binder or matrix material comprising a vulcanized natural or synthetic rubber having dispersed therein a multiplicity of discrete chips of natural or synthetic sponge rubber. Bowling balls containing the cores of the invention are characterized by improved dimensional stability and impact resistance.

3,740,355
METHOD OF PREPARING BODIES ON THE BASIS OF UREA-FORMALDEHYDE RESINS
Walther H. Klug, Stockholm, Sweden, assignor to PGC Scientifics Corporation, Rockville, Md.
Continuation of abandoned application Ser. No. 22,855, Mar. 26, 1970. This application Dec. 20, 1971, Ser. No. 210,153
Claims priority, application Sweden, Nov. 28, 1969, 16,469/69
Int. Cl. C08j 1/16
U.S. Cl. 260—2.5 FP 10 Claims

A method of preparing foamed bodies on the basis of urea-formaldehyde resins. This is accomplished by feeding separately and continuously a first component comprising a neutral or alkaline aqueous solution of a urea-formaldehyde precondensate containing a small addition of a sulfite waste liquor, and a second component comprising an aqueous solution of an acid hardener such as phosphoric acid, and a foaming agent such as an alkyl aryl sulfonate, into a mixing zone, injecting compressed air into the resulting mixture to provide a foamed mass, discharging the mass through a nozzle means connected to the mixing zone, and allowing the mass to cure. To compensate for an after-shrinkage in connection with the curing, a small amount of chalk is added to the aqueous solution of the urea-formaldehyde precondensate. An incombustible product is obtained by incorporating into the aqueous solution of the urea-formaldehyde precondensate a minor amount of copper phthalocyanine.

3,740,356
CELLULAR POLYMERIC MATERIAL, A PROCESS FOR ITS PREPARATION AND A COATING MATERIAL WHICH CONTAINS SUCH POLYMERIC MATERIAL
Pablo E. Munoa and Eduardo M. Simonin, Buenos Aires, Argentina, assignors to Sociedad Anonima Alba Fabrica de Pinturas, Esmaltes y Barnices, Buenos Aires, Argentina
No Drawing. Filed July 30, 1970, Ser. No. 59,709
Claims priority, application Argentina, Aug. 29, 1969, 223,800
Int. Cl. C08f 47/08; B01j 13/02
U.S. Cl. 260—2.5 B 8 Claims

Polymeric material in the form of small corpuscles or particles which contain therein one or a plurality of cavities. The polymeric material is useful as a component for coating compositions, plastics, films or fibers. Processes for the preparation of the polymeric material as well as the compositions incorporating same.

3,740,357
PRODUCTION OF NO-GEL ELASTOMERIC FOAMS
Ludwig A. Wax, Westfield, Mass., assignor to Standard Brands Chemical Industries, Inc., Dover, Del.
No Drawing. Filed Apr. 9, 1971, Ser. No. 132,880
Int. Cl. C08d 13/08, 7/00
U.S. Cl. 260—2.5 L 17 Claims

A heat-curable foam-forming latex composition comprising a N-methylolacrylamide-containing diene terpoly-

mer latex, a curing system, a foaming agent, and a foam stabilizer and a method for forming this composition into a no-gel foam.

3,740,358

HEAT-RESISTANT PHENOLIC FOAM COMPOSITIONS

Howard W. Christie, Kansas City, Mo., and Thomas J. Byerley, Shawnee Mission, Kans., assignors to Butler Manufacturing Company, Kansas City, Mo.

No Drawing. Continuation-in-part of abandoned application Ser. No. 826,271, May 20, 1969. This application Apr. 14, 1971, Ser. No. 134,062

Int. Cl. C08g *53/10*
U.S. Cl. 260—2.5 F **5 Claims**

A heat-resistant phenolic foam composition comprising a phenol-aldehyde foamable composition containing a phenolic resole, a boron containing compound and an acid catalyst with or without silicic acid and aluminum hydroxide and/or aluminum oxide.

The boron containing compounds specifically set forth in this case are boric acid or boric oxide, and boron-polyol complexes formed by reacting boric acid or boric oxide with a hydroxy organic compound of the group comprising glycerine, sorbitol, mannitol, other sugar alcohols, and aliphatic diols.

The acid catalysts set forth herein are phosphoric acid, hydrochloric, and the combination of phosphoric with trichloroacetic or trifluoroacetic acid which accelerate foaming without degrading heat resistance properties. In the case of the glass forming materials of silicic acid and aluminum hydroxide and/or aluminum oxide, maleic anhydride can be used in place of the acid catalyst.

3,740,359

VINYLIDENE CHLORIDE EXPANDABLE MICROSPHERES

Joseph L. Garner, Sanford, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed July 10, 1972, Ser. No. 270,295

Int. Cl. C08j *1/14, 1/26;* **B01j** *13/02*
U.S. Cl. 260—2.5 B **6 Claims**

A substantially improved expandable vinylidene chloride microsphere is obtained employing a peroxydicarbonate as catalyst. A significant improvement in conversion and reduction in residual vinylidene chloride monomer is obtained.

3,740,360

SEALING COMPOSITION AND METHOD

Kenneth H. Nimerick, Tulsa, Okla., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 730,578, May 20, 1968. This application Nov. 12, 1970, Ser. No. 89,150

The portion of the term of the patent subsequent to Oct. 26, 1988, has been disclaimed

Int. Cl. C08d *9/06*
U.S. Cl. 260—17.4 ST **19 Claims**

A composition is provided which may be employed for the selective sealing of permeable formations. The composition contains at least one particulate galactomannan gum which is treated with a hydrophobing agent to render the gum hydrophobic in aqueous solutions having a pH of at least about 7.5, a pH control agent and a water-soluble organic polymeric suspending agent. Optionally, a degradation agent, a cross-linking agent and/or a hydration agent can be included.

3,740,361

DENTURE ADHESIVE COMPOSITION AND PROCESS OF PREPARING THE SAME

Oskar Altwirth, Hoher Markt 18, Ried im Innkreis, Austria

No Drawing. Continuation-in-part of application Ser. No. 90,879, Nov. 18, 1970. This application July 10, 1972, Ser. No. 270,472

Claims priority, application Austria, Dec. 1, 1969, A/11,179

Int. Cl. C08f *45/36*
U.S. Cl. 260—17.4 ST **7 Claims**

A denture adhesive composition consisting of a spreadable mixture of sodium alginate and an ethanol solution of a normally solid polyvinyl acetate resin, the solution being a 50—50 mixture of ethanol and resin, and about ten parts of the solution being used per seven parts of the alginate.

3,740,362

NOVEL GRAFT COPOLYMERS HAVING BRANCHES OF ALTERNATING CO-MONOMER UNITS

Norman G. Gaylord, New Providence, N.J., assignor to Gaylord Research Institute, Inc., Newark, N.J.

No Drawing. Filed Aug. 25, 1970, Ser. No. 66,886

Int. Cl. C08b *23/00;* **C08f** *15/40, 19/18*
U.S. Cl. 260—17.4 GC **21 Claims**

A method for preparing novel graft copolymers in which the branches are alternating copolymers, by reacting two comonomers in the presence of a preformed polymer which has been reacted with a complexing agent selected from the group consisting of Friedel-Crafts catalysts, Lewis acids, and organoaluminum halides.

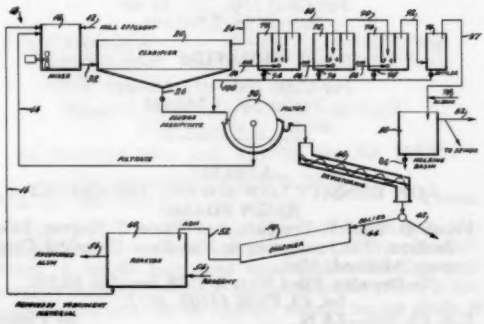
3,740,363

EFFLUENT TREATMENT PROCESSES

Robert R. Fuller, Tuscaloosa, Ala., assignor to Gulf States Paper Corporation, Tuscaloosa, Ala.

Continuation-in-part of application Ser. No. 641,304, May 25, 1967. This application Oct. 27, 1969, Ser. No. 869,784

Int. Cl. C02c *5/10*
U.S. Cl. 210—18 **8 Claims**



A waste effluent treatment which involves contacting a waste effluent, e.g., pulp and paper mill effluent, with a metal salt reagent, preferably alum mud. Treatment decolorizes the effluent and precipitates a substantial portion of the organic content. The precipitate and sludge is dewatered, then calcined, and the reagent regenerated

from the ash for use again in a cyclic process. The decolorized effluent is bio-oxidized, preferably in a multistage bio-oxidation sequence and is now sufficiently pure for recycle purposes. The purified effluent may be bleached prior to recycle.

3,740,364

INHIBITION OF DISCOLORATION OF PAINTS CONTAINING DRIERS

Helmut Schuler and Uwe Thies, Goslar, Germany, assignors to Firma Gebr. Borchers AG, Goslar, Germany

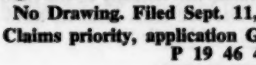
No Drawing. Filed Sept. 11, 1970, Ser. No. 71,357

Claims priority, application Germany, Sept. 13, 1969, P 19 46 478.9

Int. Cl. C09d *3/64*

U.S. Cl. 260—22 A **3 Claims**

Discoloration of paints containing driers is inhibited by the incorporation therein of certain phosphoric acid esters or metal or amine salts thereof. The esters have the formula



R is C_{1-6} lower alkyl radical,
Y is di- or tri-valent aliphatic or aromatic radical, and
n and *m* are each 1 or 2.

3,740,365

INHIBITION OF DISCOLORATION OF PAINTS CONTAINING DRIERS

Helmut Schuler and Uwe Thies, Goslar, Germany, assignors to Firma Gebr. Borchers AG, Goslar, Germany

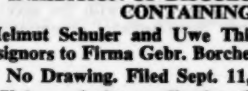
No Drawing. Filed Sept. 11, 1970, Ser. No. 71,358

Claims priority, application Germany, Sept. 13, 1969, P 19 46 477.8

Int. Cl. C09d *7/12*; C08g *51/54*; C08f *45/54*

U.S. Cl. 260—22 A **5 Claims**

Discoloration of paints containing driers is inhibited by the incorporation therein of certain phosphoric acid esters or metal or amine salts thereof. The esters have the generic formula



X is an alkyl or acyl radical,
R is hydrogen or an alkyl radical,
n is an integer from 1 to 6, and
m is 1 or 2.

3,740,366

PRESSURE SENSITIVE ADHESIVE CONTAINING CARBOXYLIC ACID GROUPS AND POLYVALENT METAL

Frank Thomas Sanderson, Huntingdon Valley, and Richard E. Zdanowski, Fort Washington, Pa., assignors to Rohm & Haas Company, Philadelphia, Pa.

Continuation-in-part of application Ser. No. 80,132, Oct. 12, 1970, which is a continuation-in-part of application Ser. No. 19,571, Mar. 16, 1970, which in turn is a continuation-in-part of application Ser. No. 819,598, Apr. 28, 1969, all now abandoned. This application Jan. 22, 1971, Ser. No. 108,819

Int. Cl. C08f *37/14*

U.S. Cl. 260—29.6 M **9 Claims**

The pressure sensitive adhesive of this invention has improved shear resistance while still having good tackiness, it is prepared by emulsion or solution polymerization, or by other methods, and has carboxylic acid groups therein, at least some of which are bound or crosslinked by a polyvalent metal, by ionic, polar, and/or coordination bonds. There are various possible theories or hypotheses as to what is involved in "crosslinking," the invention not being limited thereto. The invention includes adhesive tapes and other articles and their manufacture, in addition to the adhesive compositions.

3,740,367

COLLOIDAL DISPERSIONS OF AMMONIA-COMMINUTED PARTICLES OF METHYL METHACRYLATE-ACID COPOLYMERS

Kermit W. Winkelblech, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 715,560, Mar. 25, 1968, which is a continuation-in-part of application Ser. No. 446,692, Apr. 8, 1965, which in turn is a continuation-in-part of application Ser. No. 290,924, June 27, 1963, all now abandoned. This application Sept. 14, 1970, Ser. No. 72,124

Int. Cl. C08f *27/14, 47/16*

U.S. Cl. 260—29.6 TA **10 Claims**

Aqueous colloidal dispersions of solid particles of an interpolymer in which at least 95 percent by number of said particles have diameters of 0.1 to 0.01 micron, and said interploymer has a weight average molecular weight of at least 10,000 and consists essentially of 20–99 percent by weight of methyl methacrylate, 0–75 percent by weight of ester selected from the group consisting of alkyl acrylates having 4 to 16 carbon atoms and alkyl methacrylates having from 6 to 16 carbon atoms, 0–40 percent by weight of ethylenically unsaturated copolymerizable monomer selected from the group consisting of styrene, vinyl acetate, vinyl fluoride, vinyl chloride, vinylidene fluoride and vinylidene chloride, and acid selected from the group consisting of 1–8 percent by weight of acrylic acid, 1–8 percent by weight of methacrylic acid, 4–8 percent by weight of maleic acid, and 4–8 percent by weight of itaconic acid. These dispersions are prepared by adding to a mixture of water and solid particles of said interpolymer [illegible] percent of the stoichiometric amount of [illegible] hydroxide required to neutralize the acid pr[illegible] interpolymer and (b) when the second order [illegible] temperature of the interploymer is above 35° C. [illegible] amount of up to 1 part per part by weight of said int[illegible]mer, effective to render said interpolymer colloidally d[illegible]ible, of a liquid organic comminution agent which i[illegible]ble of at least swelling the interpolymer particles [illegible] inert toward the ammonium hydroxide, and vigorously agitating the resulting mixture at a temperature of 40–100° C. until a reduction in the size of the interpolymer particles takes place such that at least 95 percent by number of said particles have diameters of less than 0.1 micron.

3,740,368

POLYMERISATION PROCESS

Alan Charles Sturt, Guildford, and Alan Arthur John Feast, Eastleigh, England, assignors to BP Chemicals Limited, London, England

Filed Jan. 25, 1971, Ser. No. 109,475

Int. Cl. C08d *1/09, 3/02, 3/06*

U.S. Cl. 260—29.7 R **8 Claims**

Large particle size latices are prepared by emulsion polymerisation using a carboxylic acid salt emulsifying agent, the pH of the system being increased to increase the amount of emulsifying agent in the system during the course of the polymerisation without the addition of new emulsifying agent. In particular, large particle size polybutadiene latices can be prepared by maintaining the pH such that the carboxylic acid is 7.5 to 70.5% neutralised for the initial portion of the reaction.

3,740,369

LOW VISCOSITY SOLUTION OF FLUOROPOLYMER DUE TO THE USE OF POLAR ORGANIC COMPOUNDS

Stephen Proskow, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 727,724, May 8, 1968, which is a continuation-in-part of application Ser. No. 577,810, Sept. 8, 1966, both now abandoned. This application June 25, 1971, Ser. No. 156,991

Int. Cl. C08f *45/42, 45/58, 45/60*

U.S. Cl. 260—30.4 R **10 Claims**

A fluoropolymer solution composition having a lower than expected viscosity is obtained by mixing together certain proportions of a copolymer of tetrafluoroethylene and a perfluoroalkyl perfluorovinyl ether, a suitable fluorinated solvent, and a polar organic compound whose melting point is below 75° C. and whose molecular weight is below 400.

3,740,370

COATING COMPOSITION COMPRISING A COPOLYMER OF VINYL CHLORIDE AND AN UNSATURATED GLYCIDYL COMPOUND

Akihide Nakamura and Iko Ito, Niihama, and Taizo Kondo and Keizo Inamura, Hiratsuka, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, and Kansai Paint Company, Limited, Amagasaki, Japan

No Drawing. Continuation-in-part of application Ser. No. 725,928, Apr. 30, 1968. This application Oct. 27, 1971, Ser. No. 193,198

Claims priority, application Japan, Sept. 13, 1966, 41/60,572

Int. Cl. C08f *45/36, 45/38*

U.S. Cl. 260—31.8 U **6 Claims**

When a copolymer of an average polymerization degree of 400–700, obtained by emulsion-polymerizing 95.0–99.5% by weight of vinyl chloride (or a monomer mixture of more than 80% vinyl chloride and another ethylenic monomer copolymerizable with vinyl chloride) and 0.5–5.0 weight percent of an unsaturated glycidyl compound, is heated together with a plasticizer and stabilizer so that the latter are absorbed in the resin particles, there is obtained a powdery resinous composition which shows excellent adhesion and film forming properties even when directly applied to a substrate, particularly metal surface without preapplication of a primer.

3,740,371

POLYETHYLENE TEREPHTHALATE INJECTION MOLDING COMPOSITION CONTAINING NOVACULITE

Leon Segal, Morristown, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

Filed Nov. 26, 1971, Ser. No. 202,452

Int. Cl. C08g *51/04*

U.S. Cl. 260—40 R **10 Claims**

Novaculite-filled, glass-reinforced polyethylene terephthalate compositions suitable for injection molding in standard injection molding apparatus are disclosed. The tricomponent composite can be processed without polymer or filler pretreatment and has desirable properties at room, as well as at elevated temperatures. Polyethylene terephthalate compositions filled with novaculite of selected size distribution in the absence of glass fibers is itself a distinctively useful composition.

3,740,372

CHEMICALLY THICKENED POLYESTER RESIN

Melvin E. Baum, Monroeville, Pa., and John A. Hatton, Jr., Madeira, Ohio, assignors to Koppers Company, Inc.

Original application Apr. 15, 1970, Ser. No. 28,600, now Patent No. 3,637,911. Divided and this application Sept. 3, 1971, Ser. No. 177,626

Int. Cl. C08g *51/04*

U.S. Cl. 260—40 R **1 Claim**

The viscosity of unsaturated polyester resins formed by mixing the condensation polymers of unsaturated dicarboxylic acids and dihydric alcohols in ethylenically unsaturated copolymerizable monomers may be greatly increased by adding (1) a mixture of calcium oxide and either calcium hydroxide or magnesium oxide, and (2) an organic acid selected from the group consisting of benzoic acid, cyclohexane carboxylic acid, cinnamic acid and p-hydroxybenzoic acid to the unsaturated polyester resins.

The viscosity of the composition is initially low enough so that fibrous reinforcements can be impregnated with the resin composition and the low viscosity permits the resin to wet the fibers, thereafter the viscosity of the resin increases and the fibrous reinforced mass loses its tackiness and can be easily stored and handled.

3,740,373

EPOXY RESIN COMPOSITION CONTAINING A POLYOXYALKYLENEPOLYAMINE, SUBSTITUTED PIPERAZINE, SALICYLIC ACID AND A PHENOL

Floyd Edward Bentley and Norman Bell Godfrey, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed July 28, 1971, Ser. No. 166,994

Int. Cl. C08g *30/14*

U.S. Cl. 260—47 EC **13 Claims**

A self-curable epoxy resin composition is provided that contains a polyepoxide resin and an accelerator-hardener composition containing a polyoxyalkylenepolyamine, N-(3-aminopropyl)piperazine, salicylic acid and a phenol additive. Use of the accelerator-hardener composition provides unexpectedly rapid cures of epoxy resins, even at low temperature, and epoxy resins cured with the accelerator-hardener composition demonstrate exceptional properties.

3,740,374

POLY(QUINOXALINOBISIMIDAZONAPHTHALDIMIDE) POLMERS AND METHOD OF PREPARATION

Fred E. Arnold, Centerville, and Robert F. Kovar, Dayton, Ohio, assignors to the United States of America, as represented by the Secretary of the Air Force

Filed Sept. 26, 1972, Ser. No. 292,368

Int. Cl. C08g *20/32*

U.S. Cl. 260—47 CP **15 Claims**

Thermally stable poly(quinoxalinobisimidazonaphthaldimide) materials are disclosed that are prepared by the condensation of multifunctional aromatic carboxylic acids or derivatives thereof and tetraamino phenylated quinoxaline compounds. The high thermal stability of the polymers and their solubility in a variety of organic solvents renders them particularly suitable for use in high temperature applications such as in the fabrication of plastic composites and protective coatings.

3,740,375

CROSS-LINKABLE CHLORINATED AROMATIC POLYMERS

Ernest Richard Novak, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed July 1, 1971, Ser. No. 158,994

Int. Cl. C08g *25/00, 23/00*

U.S. Cl. 260—61 **11 Claims**

A cross-linkable, shapeable polymeric composition comprising the groups $(—Ar—)_x$ and $(—A—Ar'—A—)_y$ in substantially alternating sequence and a group

$$(—A—Ar'—AH)_z$$

capable of cross-linking polymer chains through their —Ar— moieties, wherein —A— is —O— or —S—, —Ar— is a divalent perchlorinated aromatic group of 10–24 aromatic carbon atoms —Ar'— is a divalent aro-

matic group of 6 to 24 aromatic carbon atoms; the groups being present in amounts such that

$$\frac{y+z}{x}$$

is in the range of 1.01 to 1.6, the polymer having an inherent viscosity of at least 0.2. A process of preparing the above described polymers by reacting a compound of the formula Cl—ArCl with a 1.01 to 1.0 molar amount of a compound of the formula HA—Ar'—AH at from 25 to 250° C. in the liquid phase and preferably in a solvent for one or both of the monomers.

3,740,376

PHOTOSENSITIVE POLYMER LAYERS OF VINYL ALCOHOL POLYMERS

Erich Wolff, Leichlingen, Wolfgang Lassig, Cologne, Eckart Seelig, Leverkusen, and Günther Kolf, Bergisch Gladbach, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 27, 1970, Ser. No. 84,543

Int. Cl. C08f *27/00, 27/10, 27/20*

U.S. Cl. 260—73 R **3 Claims**

The light sensitivity of certain photocrosslinkable polymer layers which in the presence of organic azide compounds as crosslinking agents yield upon exposure to actinic light crosslinked unsoluble products is substantially increased if photocrosslinkable polymers are used which contain as side chain a benzene ring which is on the nucleus methyl or methylene substituted.

3,740,377

ONE-STEP PREPARATION OF A POLYURETHANE-UREA RESIN USING A TETRAALKYLGUANIDINE OR ISOCYANATE ADDUCT THEREOF AS A CATALYST

George W. Huffman, Crystal Lake, and Norman E. Rustad, Barrington, Ill., assignors to The Quaker Oats Company, Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 159,498, July 2, 1971. This application Feb. 11, 1972, Ser. No. 225,652

Int. Cl. C08g *22/36*

U.S. Cl. 260—75 NC **14 Claims**

This invention relates to a one-step process for the curing of mixtures of polyisocyanates, polyols, and certain aromatic diamines to form polyurethane-urea resins useful for films and coatings or for other standard urethane applications, and has particular relation to a catalyst for the one-step curing of said mixtures.

3,740,378

METHOD FOR MAKING POLYIMIDES FROM ALIPHATICALLY UNSATURATED BIS-IMIDES

James V. Crivello, Mechanicville, N.Y., assignor to General Electric Company

No Drawing. Filed Mar. 27, 1970, Ser. No. 23,491

Int. Cl. C08g *20/20*

U.S. Cl. 260—78 UA **3 Claims**

Polyimides can be made at temperatures as low as 25° C. by effecting contact between an aryl polyamine and an aliphatically unsaturated bisimide, such as a bismaleimide, in the presence of an acid catalyst, such as an organic carboxylic acid. The resulting polyimides can be used as molding compounds, laminates, wire coatings, and in applications requiring the services of materials possessing resistance to change at elevated temperatures.

3,740,379

METHOD FOR INTRODUCING METAL CATIONS INTO LACTAM POLYMERS

Jan Sebenda and Rudolf Puffr, Prague, Czechoslovakia, assignors to The Polymer Corporation

No Drawing. Filed Jan. 8, 1971, Ser. No. 105,107

The portion of the term of the patent subsequent to June 27, 1989, has been disclaimed

Int. Cl. C08g *20/18*

U.S. Cl. 260—78 L **6 Claims**

Lactam polymers of modified properties are prepared by introducing metal cations into the lactam prior to polymerization in the form of complexes of these cations and the lactam.

3,740,380

CRYSTALLINE THERMOPLASTIC COMPOSITIONS

Ursula Eichers, Recklinghausen, and Otto Hahmann, Heinz-Hermann Meyer, Konrad Rombusch, and Manfred Rossbach, Marl, Germany, assignors to Chemische Werke Huels Aktiengesellschaft, Marl, Germany

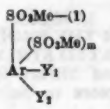
No Drawing. Filed Jan. 21, 1971, Ser. No. 108,597

Claims priority, application Germany, Jan. 22, 1970, P 20 02 650.0

Int. Cl. C08f *45/00;* **C08g** *41/00, 51/00*

U.S. Cl. 260—78 S **17 Claims**

Crystalline polyolefin and polyamide compositions nucleated with sulfonic acids and salts thereof of the formula



wherein Ar is naphthalene; Me is an equivalent of a metal, preferably alkali metal, or hydrogen; m is 0 or 1; Y_1 is an amino group in the 5- or 8-position; and Y_2 is —OH or hydrogen, have lowered crystallization half-times and a more uniform spherulite structure, which results in more rapid mold release during cyclic operating procedures; improved mechanical properties; and improved transparency.

3,740,381

PURIFICATION OF OLEFINIC POLYMERS OBTAINED IN LIQUID PHASE

Giovanni Di Drusco and Paolo Galli, Ferrara, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

Continuation of abandoned application Ser. No. 698,210, Jan. 16, 1968. This application Apr. 9, 1971, Ser. No. 132,886

Claims priority, application Italy, Jan. 18, 1967, 11,612/67

Int. Cl. C08f *1/88*

U.S. Cl. 260—80.78 **10 Claims**

Removing catalyst residues from elastomeric olefin polymers prepared with Ziegler-Natta type catalysts by washing with known aqueous washing solutions in presence of liquified polymerization monomers. Desirably, solvent for polymers is also present.

3,740,382

STEREOSPECIFIC SYNTHETIC RUBBER BASED ON 1,3-BUTADIENE AND METHOD OF PRODUCING SAME

Boris Alexandrovich Dolgoplosk, Vystavochny pereulok 3, kv. 36; Elena Ivanovna Tinyakova, ulitsa Krasikova 19, kv. 104; Solomon Isaakovich Beilin, proezd Shokdlskogo 39, kv. 43; Kirill Lvovich Makovetsky, ulitsa Dybenko 38, kv. 8; Galina Moiseevna Chernenko, ulitsa Alabiana 3, kv. 330; Irina Yakovlevna Ostrovskaya, prospekt Mira 72, kv. 2; and Vladimir Alexandrovich Krol, ulitsa Avtovskaya 25, kv. 8, all of Moscow, U.S.S.R.; and Elena Konstantinovna Khrennikova, Novo-Izmailovsky prospekt 4, kv. 219, Leningrad, U.S.S.R.

No Drawing. Filed Aug. 4, 1970, Ser. No. 60,916
Int. Cl. C08d *3/08, 1/18*
U.S. Cl. 260—82.1 2 Claims

A stereospecific synthetic rubber on the basis of 1,3-butadiene, characterized in that it is a cis-copolymer of 1,3-butadiene with conjugated cyclic dienes having from 5 to 6 carbon atoms in the cycle, the content of cyclic links in the copolymer chain ranging from 3 to 20 mol percent.

Said rubber is produced by a method, residing in that 1,3-butadiene is copolymerized with conjugated cyclic dienes having from 5 to 6 carbon atoms in the cycle, with the molar ratio of the monomers being 95–75:5–25 respectively. The process is carried out at a temperature ranging from −15 to +80° C., in the medium of a hydrocarbon solvent, in the presence of catalysts of π-allyl type, these catalysts being π-allyl compounds of nickel in combination with electron-acceptor compounds.

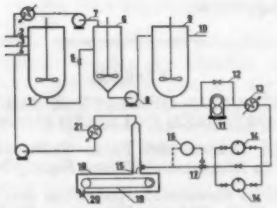
Said rubber exhibits improved technological properties, easily blends with ingredients of a rubber compound, can be easily processed into a vulcanizate, features an increased freeze resistance, and can be used at low temperatures, down to the second-order-transition temperature thereof (from −90 to −100° C.).

3,740,383

PROCESS FOR THE PRODUCTION OF FIBRILLATED STRUCTURES

Rodolfo Gabellieri and Michel Osterrieth, Rosignano-Solvay, Italy, assignors to Solvay & Cie, Brussels, Belgium

Filed Dec. 11, 1969, Ser. No. 884,067
Claims priority, application France, Dec. 13, 1968, 178,330
Int. Cl. C08f *3/04, 15/04*
U.S. Cl. 260—88.2 9 Claims



Fibrillated structures of polyethylene and copolymers of ethylene are produced directly from the polymerization or copolymerization of ethylene. The polymerization is carried out in a diluent under low pressure and in the presence of a catalyst having an activity of at least 5000 g. of polymer per gram of metal present in the catalyst. Unreacted ethylene is allowed to escape and the mixture of the polymer in the diluent is then heated under at least autogeneous pressure. The fibrillated structure is produced by the instantaneous vaporization of the diluent by transfer of the diluent-polymer mixture through an orifice and into an enclosure maintained under low pressure.

3,740,384

POLYMERISATION OF MONO-OLEFINS WITH AN ORGANOMETALLIC ZIRCONIUM COMPLEX-1,1,3,3 - TETRAPHENYLSILOXANE - 1,3 - DIOL CATALYST

Denis George Harold Ballard, Nicholas Heap, Eric Jones, Barry Tarbatt Kilbourn, and Ronald John Wyatt, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Aug. 23, 1971, Ser. No. 174,256
Claims priority, application Great Britain, Sept. 3, 1970, 42,221/70
Int. Cl. C08f *1/58, 3/06*
U.S. Cl. 260—94.9 C 16 Claims

A process for the polymerisation of mono-olefins, particularly ethylene, in which the olefin is contacted with a catalyst comprising an organometallic zirconium complex, preferably tetrabenzylzirconium, and 1,1,3,3-tetraphenylsiloxane-1,3-diol.

Preferably, the polymerisation is performed in solution.

3,740,385

N-TERMINAL DERIVATIVES OF SECRETIN

Miguel Angel Ondetti, 265 Hamlin Road, North Brunswick, N.J. 08902

No Drawing. Continuation-in-part of abandoned application Ser. No. 827,962, May 26, 1969. This application May 7, 1970, Ser. No. 35,598
Int. Cl. C07c *103/52;* C07g *7/00*
U.S. Cl. 260—112.5 6 Claims

Disclosed herein are novel N-terminal derivatives of the peptide secretin, intermediates thereof and a process for their preparation. The secretin derivative of this invention are useful as antacids in hyperacidic conditions of the stomach and duodenum.

3,740,386

PREPARATION OF PEPTIDES

Johannes J. Dahlmans, Maastricht, and Wilhelmus H. J. Boesten, Sittard, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands

Filed Feb. 18, 1971, Ser. No. 116,313
Claims priority, application Netherlands, Feb. 18, 1970, 7002226
Int. Cl. C07c *103/52*
U.S. Cl. 260—112.5 8 Claims

The invention provides a process for preparing peptides by reacting a compound containing an amino group having at least one replaceable hydrogen atom with 2-thion-oxazolidone-5 compound derived from an α-aminocarboxylic acid.

3,740,387

REACTION PRODUCTS OF NITRO-NITRITO ALKANES WITH ALKYLENE POLYAMINES AND SULFUR AND COMPOSITIONS CONTAINING THE SAME

Richard J. Lee, Downers Grove, and Samuel W. Harris, Lansing, Ill., assignors to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Feb. 24, 1971, Ser. No. 118,468
Int. Cl. C07c *161/00*
U.S. Cl. 260—132 6 Claims

Oil-soluble compounds are prepared by reacting a nitro-nitrito alkane containing at least ten carbon atoms, an alkylene polyamine, and sulfur in the molar ratio of from about 1.0:0.03:1.0 to about 1.0:0.5:2.0, respectively; compounds so formed are useful anti-rust additives in oleaginous compositions.

3,740,388

PREPARATION OF CARBOXYALKYL DERIVATIVES OF POLYGALACTOMANNANS

Rex Montgomery, Iowa City, Iowa, and George F. Bateson, Minneapolis, John D. Corcoran, Wayzata, and Le Roy O. Krbechek, Minneapolis, Minn., assignors to General Mills, Inc.

No Drawing. Filed June 11, 1970, Ser. No. 45,545
Int. Cl. C07c *47/18*
U.S. Cl. 260—209 R 4 Claims

Carboxyalkyl ethers of polygalactomannans are prepared by forming an alcohol-water slurry thereof along with a halo fatty acid reactant and an alkali metal hydroxide. The alcohol is a monohydric alcohol of 2 to 4 carbon atoms, preferably isopropyl alcohol. The products are useful as thickening agents when complexed with calcium ions.

3,740,389

FAST HYDRATING ALKALI METAL CARBOXYALKYL POLYGALACTOMANNANS AND PROCESS FOR PREPARING SAME

Robert Nordgren, Minneapolis, Minn., assignor to General Mills Chemicals, Inc.

No Drawing. Filed May 26, 1970, Ser. No. 40,745
Int. Cl. C07c *47/18*
U.S. Cl. 260—209 R 10 Claims

The hydration rate of polygalactomannans such as guar gum is substantially improved by forming the alkali metal carboxyalkyl derivatives thereof using defined reactant ratios and an alcohol-water solvent system.

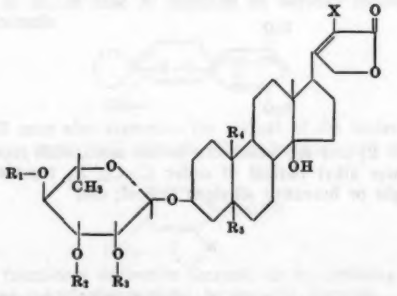
3,740,390

CARDENOLIDE RHAMNOSIDES

Joachim Heider, Warthausen-Oberhofen, and Josef Nickl and Wolfgang Eberlein, Biberach an der Riss, Germany, Walter Kobinger, Vienna, Austria, and Gerhard Dahms, Biberach an der Riss, Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Germany

No Drawing. Filed Jan. 8, 1971, Ser. No. 105,121
Claims priority, application Germany, Jan. 14, 1970, P 20 01 364.3
Int. Cl. C07c *173/00*
U.S. Cl. 260—210.5 5 Claims

Compounds of the formula



wherein

X is fluorine or methyl,
R_1 is hydrogen or acetyl,
R_2 and R_3 are each hydrogen or acetyl or, together with each other O-isopropylidene,
R_5 is hydrogen or hydroxyl, and
R_4 is methyl when R_5 is hydrogen; or formyl or hydroxymethyl when R_5 is hydroxyl;

the compounds are useful as cardiotonics with a positive inotropic action.

3,740,391

THERMOSETTING GLYOXALATED IONIC GLUCOPYRANOSYL POLYMER AND WET STRENGTH PAPER HAVING A CONTENT THEREOF

Laurence Lyman Williams, Stamford, and Anthony Thomas Coscia, Norwalk, Conn., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of applications Ser. No. 471,463, July 12, 1965, now abandoned, and Ser. No. 745,486, July 17, 1968, now Patent No. 3,556,932. This application Jan. 18, 1971, Ser. No. 107,461
Int. Cl. C08d *9/06*
U.S. Cl. 260—233.3 R 5 Claims

A water-soluble thermosetting wet-strengthening agent for paper is prepared by reacting an amidated ionic glucopyranosyl compound with glyoxal. Wet strength paper containing this polymer loses about half its wet strength during 24 hours of normal wet weathering when discarded, thereby alleviating the litter problem.

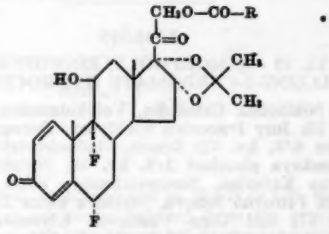
3,740,392

HETEROCYCLIC CARBOXYLIC ACID ESTERS OF FLUOCINOLONE-ACETONIDE

Joachim Heider, Warthausen-Oberhofen; Wolfgang Eberlein, and Gunther Engelhardt, both of Biberach/Riss, all of Germany, assignors to Ingelheim Boehringer GmbH, Ingelheim am Rhine, Germany

Filed Jan. 26, 1971, Ser. No. 109,975
Claims priority, application Germany, Feb. 4, 1970, P 20 05 002.6
Int. Cl. C07c *173/10*
U.S. Cl. 260—239.55 D 5 Claims

Novel esters of fluocinolone-acetonide or 6α,9α-di-fluoro-16α,17α-isopropylidenedioxy-$\Delta^{1,4}$-pregnadiene-11β,21-diol-3,20-dione of the formula



wherein R is selected from the group consisting of pyridine-3, pyridine-4, benzofuran-2 or 1-menthoxymethyl having high glucocorticoid and antiphlogistic activity and their preparation.

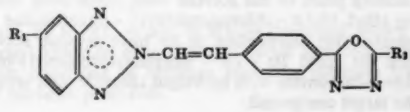
3,740,393

STYRYL COMPOUNDS

Klaus-Dieter Bode and Josef Schroeder, Leverkusen, and Carl-Wolfgang Schellhammer, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 22, 1970, Ser. No. 83,243
Claims priority, application Germany, Nov. 3, 1969, P 19 55 065.3
Int. Cl. C09b *23/14*
U.S. Cl. 260—240 D 7 Claims

2 - [4' - (oxdiazolyl - 2'')-styryl]-benzotriazoles of the general formula



in which R_1 denotes hydrogen, halogen, alkyl, aralkyl or aryl radicals, and R_2 means hydrogen, aryl, aralkenyl or heteroaryl radicals, as well as their preparation and their use as optical brightening agents.

3,740,394

THIAZOLO AND THIAZINO PYRIMIDINES

Pierre Baetz, Garches, France, assignor to Seperic, Morat, Fribourg Canton, Switzerland

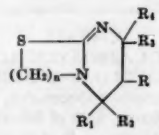
Filed June 29, 1970, Ser. No. 50,715

Claims priority, application Great Britain, July 3, 1969, 33,646/69

Int. Cl. C09d *51/46*

U.S. Cl. 260—243 R 6 Claims

Compounds of formula:



(I)

in which *n* is 2 or 3, R is hydrogen or, together with R_3, forms a double bond, R_1 is hydrogen or a lower alkyl group, R_2 and R_4 are each hydrogen, a lower alkyl group, a phenyl group optionally substituted, thienyl or pyridyl, and R_3 is hydroxyl or, together with R, forms a double bond. These compounds and their salts are therapeutically active, in particular as antiinflammatory drugs.

3,740,395

ETHYL 10 - (β-MORPHOLYLPROPIONYL)-PHENTHIAZINE-2-CARBAMATE HYDROCHLORIDE

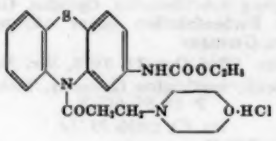
Anna Nikitichna Gritsenko, Volokolamskoe shosse 80, kv. 28; Jury Ivanovich Vikhlyaev, Dorogomilovskaya ulitsa 6/8, kv. 12; Semen Vladimirovich Zhuravlev, Minsskaya ploschad 3/8, kv. 38; Natalya Veniaminovna Kaverina, Novopeschanaya ulitsa 3, kv. 32; Zlata Petrovna Senova, Mytnaya ulitsa 23, korpus 2, kv. 67; and Olga Vasilievna Ulyanova, 2 ulitsa Oktyabrskogo Polya 21, kv. 46, all of Moscow, U.S.S.R.

No Drawing. Filed Oct. 14, 1969, Ser. No. 870,444

Int. Cl. C07d *93/14*

U.S. Cl. 260—243 AC 1 Claim

A novel composition of matter, ethyl 10-(β-morpholylpropionyl)-phenthiazine-2-carbamate hydrochloride, having the formula



which comprises reacting ethyl phenthiazine-2-carbamate with β-chloropropionyl chloride in an inert organic solvent at a boiling point of the solvent used, condensing the resulting ethyl 10-(β - chloropropionyl) - phenthiazine - 2-carbamate with morpholine in an inert organic solvent, treating the ethyl 10 - (β - morpholylpropionyl)-phenthiazine-2-carbamate with hydrogen chloride, and separating the target compound.

The novel compound, ethyl 10-(β-morpholylpropionyl)-phenthiazine-2-carbamate hydrochloride, is the active principle of an antiarhythmic pharmaceutical preparation.

3,740,396

THIAZOLINYL AND THIAZINYL DERIVATIVES OF BENZOTRIAZOLES

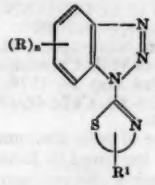
Rudiger D. Haugwitz, Highland Park, and Venkatachala L. Narayanan, Hightstown, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Filed Sept. 7, 1971, Ser. No. 178,394

Int. Cl. C07d *93/06*

U.S. Cl. 260—243 R 8 Claims

Thiazolinyl and thiazinyl derivatives of benzotriazoles are provided having the structure



and which are useful as anthelmintic agents.

3,740,397

1-(3,5-DIALKOXY-PHENOXY)-2-(TERTIARY AMINO) ETHANES

Louis Lafon, Paris, France, assignor to Societe Orsymonde, Paris, France

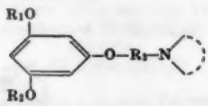
No Drawing. Filed Apr. 27, 1970, Ser. No. 32,444

Claims priority, application Great Britain, Apr. 29, 1969, 21,889/69

Int. Cl. C07d *87/32*

U.S. Cl. 260—247.7 C 6 Claims

New compounds of the general formula:

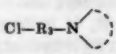


(I)

where R_1 and R_2, which can be the same, each represent a lower alkyl radical of order C_1–C_3; R_3 represents a straight or branched alkylene radical; and

is a group selected from the aliphatic and N-heterocyclic amino groups, the latter amino group being capable of containing a second hetero atom; and their acid addition salts.

These compounds are obtained by the condensation in alcohol, in the presence of sodium, of a 3′,5′-dialkoxy phenol on a chloroalkylamine:



The compounds of Formula I and their acid addition salts are therapeutically useful.

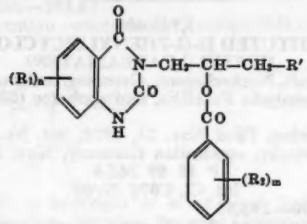
3,740,398

BASICALLY SUBSTITUTED 2,4-(1H,3H)-QUINAZOLINDIONE DERIVATIVES

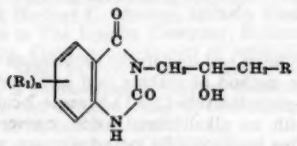
Rudi Beyerle, Bruchkobel, and Rolf-Eberhard Nitz, Klaus Resag, Eckhard Schraven, and Adolf Stachel, deceased, late of Frankfurt am Main, Fechenheim, by Inge Stachel, Frankfurt am Main, Fechenheim, and Sophie Stachel, heirs, Augsburg, Germany, assignors to Cassella Farbwerke Mainkur Aktiengesellschaft, Frankfurt am Main, Fechenheim, Germany

No Drawing. Filed June 25, 1970, Ser. No. 49,923
Claims priority, application Germany, July 4, 1969, P 19 34 036.4
Int. Cl. C07d *51/48*
U.S. Cl. 260—247.2 A 6 Claims

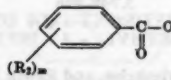
Pharmacologically valuable, basically substituted 2,4-(1H,3H)-qiunazolidione derivatives having the formula



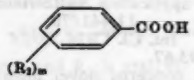
wherein R' is selected from a radical selected from the group consisting of di-C_1–C_4-alkylamino, N-methyl-benzylamino, N-methyl-N-cyclohexylamino, N-methyl-allylamino, N-methyl-piperazino, N-methyl-N-(piperidino-n-propyl)amino, N-methyl-N-(methoxy-n-propyl)-amino, hexamethyleneimino. morpholino, thiomorpholino, pyrrolidino and piperidino; R_1 is methoxy; R_2 stands for alkoxy groups having 1–4 carbon atoms; *m* stands for an integer selected from the groups 1, 2 and 3; and *n* stands for an integer selected from the groups 2 and 3 having the formula



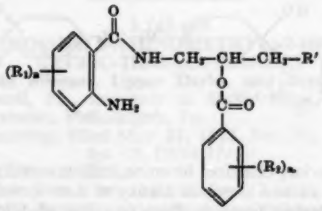
wherein R_1 has the above-given meaning, R is identical with R' or, in case R' contains an acyloxy radical of the formula



said R may also represent the radical of the underlying hydroxy compound with an alkoxy benzoic acid of the formula



or a functional derivative thereof; or by cyclizing substituted o-aminobenzamides having the formula



with phosgene or with a lower alkyl chloroformate.

3,740,399

DIAMINO-s-TRIAZINES

Satoshi Murai, Yokaichi, Koichi Yoshida, Takatsuki, and Chikanori Tomioka, Kyoto, Japan, assignors to Kakenyaku Kako Kabushiki Kaisha, Tokyo-to, Japan

No Drawing. Filed Feb. 10, 1971, Ser. No. 114,383
Claims priority, application Japan, May 13, 1970, 45/40,664
Int. Cl. C07d *55/20*
U.S. Cl. 260—249.8 14 Claims

There are disclosed novel S-triazine derivatives and salts thereof. They can be used as therapeutices having activity as antiphlogistics, blood vessel expanders, nervous system sedatives, antivirals, antispasmodics, blood sugar reducers and diuretics. They are prepared by the reaction of a substituted diguanide or salt thereof with a carboxylic acid ester.

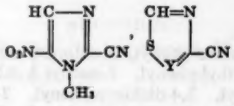
3,740,400

CONVERSION OF HETEROAROMATIC METHYL COMPOUNDS TO NITRILES

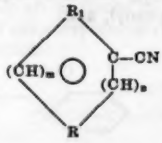
Gerald Berkelhammer, Princeton, and William Henry Gastrock, Hightstown, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Feb. 1, 1971, Ser. No. 111,732
Int. Cl. C07d *51/36*
U.S. Cl. 260—250 R 7 Claims

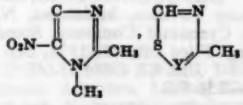
The present invention relates to a novel process for the preparation of 5- and 6-membered heteroaromatic nitriles having a formula selected from the group consisting of:



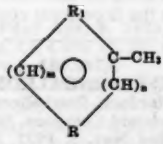
where Y is N or CH; and



where R and R_1 each represent N, N=N or CH, *m* and *n* each represent an integer selected from the group consisting of 0, 1 and 2 and provided that at least one of R and R_1 represents a member other than CH and that the resulting compounds are limited to 6-membered rings. The process of this invention involves reaction, in the presence of an inert organic solvent, of a 5- or 6-membered heteroaromatic compound of the formula selected from the group consisting of:



and



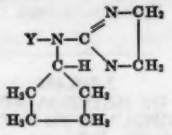
where Y, R, R_1, *m* and *n* are as described above, with nitrosyl chloride or a nitrogen oxide selected from the group consisting of nitrogen tetroxide, nitrogen trioxide and nitrogen pentoxide.

3,740,401
2-(N-CYCLOALKYL-PHENYLAMINO)-2-IMIDAZOLINES-(2) AND SALTS THEREOF

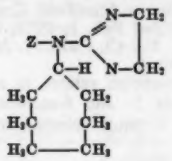
Helmut Stahle, Herbert Koppe, Werner Kummer, and Klaus Stockhaus, Ingelheim am Rhein, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany

No Drawing. Filed Nov. 18, 1970, Ser. No. 90,845
Claims priority, application Germany, Nov. 19, 1969, P 19 58 212.8
Int. Cl. C07d *49/34, 57/48*
U.S. Cl. 260—254 19 Claims

Compounds of the formula



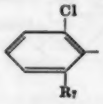
or



wherein

Y is 2,6-dichloro-phenyl, 2-chloro-6-methyl-phenyl, 2-chloro-4-methyl-phenyl, 2-methyl-4-chloro-phenyl, 2-chloro-phenyl, 2,4-dichloro-phenyl, 2-methyl-phenyl, 2,6-diethyl-phenyl, 4-bromo-phenyl, 2,6-dichloro-4-bromo-phenyl, 4-cyano-phenyl, 4-fluoro-phenyl, 2-trifluoromethyl-phenyl, 2-methoxy-4-chloro-phenyl or 2-chloro-3-methyl-phenyl, and

Z is



where R_7 is chlorine or methyl,

and their non-toxic, pharmacologically acceptable acid addition salts; the compounds as well as their salts are useful as analgesics.

3,740,402
CERTAIN 2-(o-SULFONAMIDOPHENYL)-4(3H)-QUINAZOLINONES

Albert Anthony Cevasco, Middlesex, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Mar. 1, 1971, Ser. No. 119,964
Int. Cl. C07d *51/48*
U.S. Cl. 260—256.5 R 6 Claims

Flourescent compositions which are not visible under ordinary light, said compositions having organic quinazolone compounds as the fluorescent component.

3,740,403
3,6-BIS-(DIALKYLAMINOALKOXY)ACRIDINES

Keith Chadwick Murdock, Pearl River, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Nov. 5, 1971, Ser. No. 196,222
Int. Cl. C07d *37/24*
U.S. Cl. 260—279 R 9 Claims

This disclosure describes compounds of the class of 3,6-bis-(dialkylaminoalkoxy)acridines useful as antiviral agents.

3,740,404
PIPERIDINOMETHYLENEDIHYDROCARBAZOLONES

Ruddy Littell, Rivervale, and George Rodger Allen, Jr., Old Tappan, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 823,513, May 9, 1969, now Patent No. 3,634,420. This application July 9, 1971, Ser. No. 161,267
Int. Cl. C07d *29/26*
U.S. Cl. 260—293.61 8 Claims

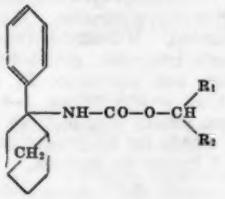
The preparation of substituted piperidinomethylenedihydrocarbazolones by reacting a 2,3-dihydrocarbazolone with paraformaldehyde and a piperidine is described. The products are useful for their central nervous system activity as tranquilizers.

3,740,405
N-SUBSTITUTED [2-(2-PHENYLBICYCLO-(2,2,1)-HEPTYL)]-CARBAMATES

Helmut Kraft, Neckarhausen, Germany, assignor to Knoll A.G. Chemische Fabriken, Ludwigshafen (Rhine), Germany

No Drawing. Filed Nov. 24, 1970, Ser. No. 92,517
Claims priority, application Germany, Nov. 26, 1969, P 19 59 365.8
Int. Cl. C07d *39/06*
U.S. Cl. 260—293.53 9 Claims

Spasmolytic and broncholytic N-substituted [2-(2-phenylbicyclo-(2,2,1)-heptyl]-carbamates of the formula



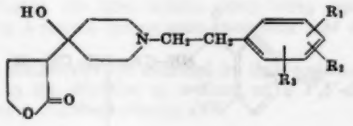
and acid addition and quaternary ammonium sulfate salts thereof; the method of making said carbamates by reaction of 2-phenylbicyclo-(2,2,1)-heptane-2-carbonic acid chloride with an alkali metal azide, conversion to the corresponding isocyanate by loss of nitrogen, and reaction of the isocyanate with an amino alcohol.

3,740,406
DIHYDRO-3 [4-HYDROXY-1-(DI OR TRI-SUBSTITUTED PHENETHYL) - 4 - PIPERIDYL]-2-(3H) FURANONE

Anton Ebnöther, Arlesheim, and Erwin Rissi, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

No Drawing. Filed July 20, 1971, Ser. No. 164,452
Claims priority, application Switzerland, July 29, 1970, 11,441/70
Int. Cl. C07d *29/24*
U.S. Cl. 260—293.67 13 Claims

The invention concerns novel piperidyl-furanone derivatives of the formula:



wherein

R_1 is fluorine, chlorine, bromine, trifluoromethyl, alkyl of 1 to 4 carbon atoms or alkoxy of 1 to 4 carbon atoms,

R_2 is chlorine, bromine, fluorine, alkyl of 1 to 4 carbon atoms or alkoxy of 1 to 4 carbon atoms, and

R_3 is hydrogen, alkyl of 1 to 4 carbon atoms or alkoxy of 1 to 4 carbon atoms.

A process for their production and intermediates therefor are also described.

The compounds are useful as analgesics.

3,740,407

DIHYDRO-3-(4-HYDROXY-1-PHENETHYL-4-PIPERIDYL)-2-(3H)-FURANONES

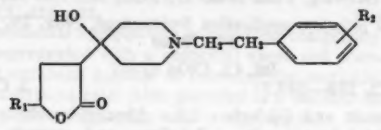
Anton Ebnöther, Arlesheim, and Erwin Rissi, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

No Drawing. Continuation-in-part of abandoned application Ser. No. 52,736, July 6, 1970. This application May 1, 1972, Ser. No. 249,222

Int. Cl. C07d *29/24*

U.S. Cl. 260—293.67 **23 Claims**

The invention concerns novel compounds of formula:



wherein R_1 is hydrogen or lower alkyl, and R_2 is hydrogen, fluorine, chlorine, bromine, lower alkyl, lower alkoxy or lower alkylthio, cyano, amino or trifluoromethyl, or —$NHCOR_3$, wherein R_3 is lower alkyl, and pharmaceutically acceptable acid addition salts thereof.

The compounds of Formula I possess useful analgesic properties.

Processes for the production of the compounds I are also described.

3,740,408

OXYGENATED 3-AZA BICYCLO[3,3,1]NONANES

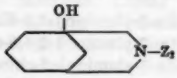
Gunther S. Fonken, Galesburg, Milton E. Herr, Kalamazoo, and Herbert C. Murray, Hickory Corners, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Continuation-in-part of application Ser. No. 666,991, Sept. 11, 1967, now Patent No. 3,556,943, which is a continuation-in-part of abandoned application Ser. No. 453,204, May 4, 1965. This application Oct. 23, 1970, Ser. No. 83,649

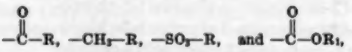
Int. Cl. C07d *39/00*

U.S. Cl. 260—293.54 **4 Claims**

Oxygenated azabicyclononanes of the formula:



wherein Z_2 is selected from the group consisting of hydrogen,



in which R is aryl, and R_1 is aralkyl. The compounds of the above formula are of particular value as central nervous system stimulants.

3,740,409

2-AMINO(AND 2-AMINOMETHYL)-2-HETEROCYCLIC-THIOACETAMIDES

L. Martin Brenner, Upper Darby, and Bernard Loev, Broomall, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Filed Mar. 21, 1972, Ser. No. 236,593

Int. Cl. C07d *31/50*

U.S. Cl. 260—294.8 E **3 Claims**

The compounds are 2-amino(and 2-aminomethyl)-2-heterocyclic-thioacetamides which are inhibitors of gastric acid secretion.

3,740,410

ACID ADDITION SALTS OF 2,3,5,6-TETRAAMINOPYRIDINE AND A PROCESS FOR THEIR PREPARATION

Arthur H. Gerber, Cleveland, Ohio, assignor to Horizons Incorporated, a Division of Horizons Research Incorporated

No Drawing. Filed Nov. 23, 1970, Ser. No. 92,154

Int. Cl. C07d *31/42*

U.S. Cl. 260—295 S **5 Claims**

Processes for the preparation of 2,6-diamino-3,5-dinitropyridine from 2,6-diaminopyridine and catalytic reduction of this dinitropyridine to 2,3,5,6-tetraaminopyridine free base and acid salts thereof, and processes for preparing polymers from said pyridines.

3,740,411

WATER-SOLUBLE ANTIBACTERIAL COMPOUNDS

Hisao Akiyama, Nishinomiya, Shigeru Okano, Ibaraki, and Hiroyuki Suzuki, Kaoru Maezima, Toshiaki Komatsu, and Toyozo Katsura, Takarazuka, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

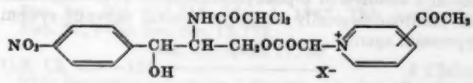
No Drawing. Filed June 18, 1971, Ser. No. 154,662

Claims priority, application Japan, June 23, 1970, 45/55,447

Int. Cl. C07d *31/44*

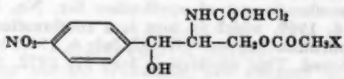
U.S. Cl. 260—295 Q **1 Claim**

A novel water-soluble antibacterial compound of the formula

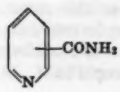


wherein X is a halogen anion.

These compounds are produced by reacting a halogenoacetic acid ester of chloramphenicol or thiamphenicol represented by the formula:



wherein X is as hereinbefore defined, with carbamoylpyridine represented by



3,740,412

IMIDAZOLINE-3-OXIDE-1-OXYL DERIVATIVES

Edwin F. Ullman, Atherton, Ludwig Call, Palo Alto, Richard K. Leute, Sunnyvale, and Jeanne H. Osiecki, Los Altos, Calif., assignors to Synvar Associates, Palo Alto, Calif.

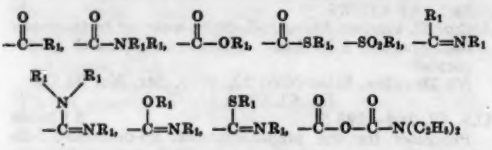
No Drawing. Filed Apr. 8, 1970, Ser. No. 26,750

Int. Cl. C07d *49/30, 49/34*

U.S. Cl. 260—309.6 **12 Claims**

Dihydroimidazoles, tetrahydroimidazoles and tautomeric mixtures of dihydroimidazoles and tetrahydroimidazoles having tertiary carbon atoms in the number 4 and number 5 positions of the hydroimidazole ring, and having attached at the C_2 position of the imidazole ring a radical selected from the group consisting of —NR_1R_2, $=NR_2$, —NR_2^-, —S^-, —SR_1, and —OR_1, wherein R_1 is hydrogen, alkyl, aryl, alkenyl, alkynyl cycloalkyl and

substituted derivatives thereof, and R_2 is hydrogen, alkyl, aryl alkenyl, alkynyl, cycloalkyl,



and substituted derivatives thereof. There are one or two oxidized nitrogen atoms in the ring in the form of oxides or hydroxides.

3,740,413

2-BENZIMIDAZOLECARBOXAMIDES

Ronald J. McCaully, Malvern, and Carl Gochman, Philadelphia, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Original application May 15, 1970, Ser. No. 37,909, now Patent No. 3,661,925, dated May 9, 1972. Divided and this application Oct. 26, 1971, Ser. No. 192,352

Int. Cl. C07d *49/38*

U.S. Cl. 260—309.2 **5 Claims**

This invention relates to substituted 2-benzimidazolecarboxamides and to processes for their production comprising the reaction of a 2,2-dihydroxyacetamide dialkanoate in a solution of o-phenylenediamine. The compounds are pharmacologically active as central nervous system depressant agents.

3,740,414

COMPOSITION OF MATTER

Melvin M. Olson, Richfield, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Division of application Ser. No. 43,970, June 5, 1970, now Patent No. 3,661,874, which is a continuation-in-part of application Ser. No. 871,529, Nov. 6, 1969, which in turn is a continuation-in-part of application Ser. No. 469,902, July 6, 1965, both now abandoned. This application Jan. 17, 1972, Ser. No. 218,581

Int. Cl. C08c *11/44*; C08d *5/02, 9/00*

U.S. Cl. 260—326 A **16 Claims**

A water-soluble rubbery polymer, formed by the reaction of an epoxidized water-insoluble neutral rubbery polymer and a water-soluble secondary mono amine, has particular utility in the formulation of water-soluble pressure-sensitive adhesives and coatings which render hydrophobic substrates hydrophilic.

3,740,415

DIHALOALKYL PHTHALIMIDES

Yoshio Kashihara, Osaka, Shozi Fukuzawa, Kyoto, Toshio Imamura, Osaka, Minoru Kakehi, Kobe, and Masayuki Watanabe, Aichi, Japan, assignors to Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France, Paris, France

No Drawing. Original application Feb. 11, 1969, Ser. No. 798,446, now Patent No. 3,597,447. Divided and this application Jan. 5, 1971, Ser. No. 104,127

Claims priority, application Japan, Feb. 16, 1968, 43/9,683

Int. Cl. C07d *27/52*

U.S. Cl. 260—326 HL **2 Claims**

By the utilization of the dihaloalkyl phthalimides of this invention, high purity 1-alkyl (or alkenyl)-2-aminoalkylpyrrolidines are produced. Such high purity aminoalkylpyrrolidines are particularly useful in the preparation of benzamides employed in the treatment of mammals for emesis and nervous disorders. In addition, such pyrrolidines may be used in the production of pyrrolidylquinolines and pyrrolidylquinazolines useful as anti-inflammatory agents when administered to mammals.

3,740,416

(+)-CIS - 1,3-DIBENZYL-HEXAHYDRO-1H-THIENO-[3,4-d]IMIDAZOLES - 2,4-DIONE, AND PROCESS FOR ITS PREPARATION

Max Gerecke, Reinach, Switzerland, and Jean Pierre Zimmermann, Saint Louis, France, assignors to Hoffmann-La Roche, Inc., Nutley, N.J.

No Drawing. Filed Nov. 17, 1970, Ser. No. 90,477

Claims priority, application Switzerland, Nov. 29, 1969, 17,773/69

Int. Cl. C07d *63/02*

U.S. Cl. 260—309.7 **2 Claims**

Racemic and (+)-cis - 1,3 - dibenzyl-hexahydro-1H-thieno[3,4-d]imidazole - 2,4-dione and various intermediates, prepared from the corresponding cis-1,3-dibenzyl-hexahydro-1H-furo[3,4-d]imidazole-2,4-dione, are described. The end products are valuable intermediates in the synthesis of (+)-biotin, as well as derivatives and related products thereof. Processes for the synthesis of (+)-biotin are also described.

3,740,417

(2-IMIDAZOLIN-2-YLAMINO)SUBSTITUTED BENZO[b]THIOPHENES

Hans-Jurgen E. Hess, Old Lyme, and Roger P. Nelson, Waterford, Conn., assignors to Pfizer Inc., New York, N.Y.

No Drawing. Continuation of application Ser. No. 15,864, Mar. 2, 1970. This application Dec. 1, 1971, Ser. No. 203,863

Int. Cl. C07d *49/34*

U.S. Cl. 260—309.6 **7 Claims**

Substituted benzo[b]thiophenes selected from the group consisting of those wherein the substituents are:

(a) 5-(2-imidazolin-2-ylamino)-3,4-dichloro-,
(b) 5-(2-imidazolin-2-ylamino)-3,4,6-trichloro-,
(c) 4-(2-imidazolin-2-ylamino)-5-chloro-,
(d) 4-(2-imidazolin-2-ylamino)-5,7-dichloro-,
(e) 4-(2-imidazolin-2-ylamino)-3,5-dichloro-,
(f) 6-(2-imidazolin-2-ylamino)-5,7-dichloro-,
(g) 7-(2-imidazolin-2-ylamino)-6-chloro-,
(h) 3-(2-imidazolin-2-ylamino)-2-chloro-,
(i) 2-(2-imidazolin-2-ylamino)-3-chloro,

the corresponding bromo analogs;

and the pharmaceutically-acceptable acid addition salts thereof, useful as antihypertensive agents and methods for their preparation.

ERRATA

For Classes 423—10 and 423—6 see:
Patents Nos. 3,740,199 and 3,740,200

ERRATUM

For Class 423—407 see:
Patent No. 3,740,436

3,740,418
RADIOACTIVE SCANNING PREPARATION
Puthucode N. Rajamani and Howard S. Stern, North Brunswick, Dasika R. K. Murty, Kendall Park, and Thomas A. Haney, East Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Filed July 1, 1970, Ser. No. 51,707
Int. Cl. A61k *27/04*
U.S. Cl. 424—1 6 Claims
Disclosed herein is a radioactive complex having useful urinary radio-pharmacological properties to discern if the kidney or other organs of the body are functioning properly.

3,740,419
PESTICIDAL COMPOSITIONS
Craig C. Campbell, Cherry Hill, N.J., assignor to Mobil Oil Corporation
No Drawing. Filed Jan. 20, 1971, Ser. No. 108,181
Int. Cl. A01n *9/00*
U.S. Cl. 424—21 33 Claims
A pesticidal composition is provided comprising a carrier impregnated with a pesticidal agent and coated with a wax emulsion capable of releasing the pesticidal agent at a controlled rate. Also provided is a method for combatting pests employing such compositions.

3,740,420
PHARMACEUTICAL COMPOSITIONS WITH DIMETHYL SULFOXIDE
Robert J. Herschler, Camas, Wash., and Stanley W. Jacob, Oswego, Oreg.; said Jacob assignor to Crown Zellerbach Corporation, San Francisco, Calif.
No Drawing. Continuation-in-part of application Ser. No. 686,295, Nov. 28, 1967, now Patent No. 3,549,770, dated Dec. 22, 1970, which is a continuation-in-part of applications Ser. Nos. 329,205, 329,208, 329,209, 329,238, and 329,271, all Dec. 9, 1963, 346,366, Feb. 10, 1964, 417,781, 417,788 and 417,797, all Dec. 11, 1964, all now abandoned. This application Oct. 30, 1970, Ser. No. 85,696
Int. Cl. A61k *9/00*
U.S. Cl. 424—45 24 Claims
Compositions and dosage forms for topical administration of dimethyl sulfoxide as a pharmaceutical are described, wherein the dimethyl sulfoxide concentration is between about 10% and about 90% and wherein diluents, together with dimethyl sulfoxide-soluble lipoidal thickening agents, water-dispersible thickening agents and emulsion-base thickening agents, are included in such compositions. Suppositories containing dimethyl sulfoxide (DMSO) are also described. Liquid formulations for topical application including at least 10% DMSO and an aqueous diluent in spray containers are also provided.

3,740,421
POLYOXYETHYLENE-POLYOXYPROPYLENE AQUEOUS GELS
Irving R. Schmolka, Grosse Ile, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.
No Drawing. Filed Sept. 19, 1966, Ser. No. 580,204
Int. Cl. A61k *7/00, 27/00*
U.S. Cl. 424—65 12 Claims
Clear aqueous gels are prepared from certain polyoxyethylene polyoxypropylene block polymers. The gels are particularly useful in the formulation of topically-applicable cosmetic and pharmaceutical compositions.

3,740,422
POLYETHYLENIMINE HAIR AND SCALP RINSE
Gordon Trent Hewitt, Upper Montclair, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.
No Drawing. Filed May 25, 1970, Ser. No. 41,158
Int. Cl. A01n *9/22*; A61l *23/00*
U.S. Cl. 424—78 5 Claims
A novel scalp rinse (aqueous or aqueous-alcoholic system) containing solubilized polyethylenimine polymers.

3,740,423
PROTECTION OF THE COLON OF MAMMALS DURING TREATMENT WITH ANTIBIOTICS BY SIMULTANEOUS ADMINISTRATION OF NYSTATIN AND *TORULOPSIS TROPSIS*
Pierre Roger Barbier, Paris, France, assignor to Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France, Paris, France
No Drawing. Continuation-in-part of application Ser. No. 873,685, Nov. 3, 1969, which is a continuation-in-part of application Ser. No. 631,852, Apr. 19, 1967, both now abandoned. This application Jan. 19, 1972, Ser. No. 219,139
Int. Cl. A61k *27/00*
U.S. Cl. 424—93 2 Claims
The disadvantages of treatment of mammals with antibiotics—destruction of intestinal flora and consequent possibility of development of pathogenic yeasts latent in the colon—are avoided by administering, simultaneously with the said antibiotics, a mixture of Nystatin which destroys the pathogenic yeasts, and of *Torulopsis tropsis* which reinseminates the colon with sound flora.

This invention relates to the combination of Nystatin and *Torulopsis tropsis* which is the only yeast found to be resistant to Nystatin and to be non-pathogenic.

3,740,424
BORATE COMPLEX OF POLYENE MACROLIDE ANTIBIOTICS
John Vandeputte, Milltown, N.J., assignor to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 634,819, May 1, 1967. This application Feb. 24, 1970, Ser. No. 13,772
Int. Cl. A61k *21/00*
U.S. Cl. 424—181 8 Claims
This invention relates to a borate complex of polyene macrolide compounds. The borate complex is formed by the interaction of a polyene macrolide compound and a borate salt in a medium such as methanol. The borate complex retains the activity of the antibiotic and has the particular advantage of being soluble in water and is stable both in the dry form and in solution.

3,740,425
ANTIPYRETIC AGENT
Jerry Roy Martin, Waukegan, Ill., assignor to Abbott Laboratories, North Chicago, Ill.
No Drawing. Original application Dec. 18, 1970, Ser. No. 99,705, now Patent No. 3,684,794. Divided and this application Mar. 9, 1972, Ser. No. 233,340
Int. Cl. A61k *21/00*
U.S. Cl. 424—181 1 Claim
3-O-(α-L-mycarosyl)-8-hydroxyerythronolide B is useful as an antipyretic agent. The compound is prepared by the fermentation of 8-hydroxyerythronolide B with *Streptomyces erythreus* NRRL 3887 in suitable nutrient media.

3,740,426
PHARMACOLOGICALLY EFFECTIVE SUBSTANCE FOR LOWERING BLOOD PRESSURE AND PROCESS FOR ISOLATING IT FROM *CABUCALA MADAGASCARIENSIS*
Alfred Groebel, Bad Soden, Taunus, and Ernst Lindner, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
Filed Mar. 9, 1971, Ser. No. 122,359
Claims priority, application Germany, Mar. 11, 1970, P 20 11 553.1
Int. Cl. A61k *27/00*
U.S. Cl. 424—195 8 Claims
A pharmacologically active substance having blood pressure lowering activity, isolated from *Cabucala madagascariensis*. Pharmaceutical compositions containing this active substance. Process for isolating the active substance from the plant material by extraction and purification.

3,740,427
INSECTICIDALLY ACTIVE LOWER ALKYL-SUBSTITUTED 2 - CHLORO - 2-THIONO-1,3,2-DIOXAPHOSPHORINANE

Hellmut Hoffmann, Wuppertal-Elberfeld, and Wolfgang Behrenz and Ingeborg Hammann, Cologne, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed May 11, 1970, Ser. No. 36,502
Claims priority, application Germany, May 23, 1969, P 19 26 565.7
Int. Cl. A01n *9/36*
U.S. Cl. 424—209 10 Claims

Compositions and methods of using 2-chloro-2-thiono-1,3,2-dioxaphosphorinane containing at least two lower alkyl substituents some of which are new, which possess strong insecticidal properties, and which may be produced by particular methods.

3,740,428
VOLATILE INSECTICIDE

Samuel B. Soloway and Juan G. Morales, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Oct. 9, 1970, Ser. No. 79,698
Int. Cl. A01n *9/36*
U.S. Cl. 424—219 3 Claims

O-(2,2-dichlorovinyl) O,O-dimethyl phosphorothioate is useful as an insecticide.

3,740,429
HELMINTH CONTROL

Samuel B. Soloway and Juan G. Morales, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Oct. 9, 1970, Ser. No. 79,629
Int. Cl. A61k *27/00*
U.S. Cl. 424—219 10 Claims

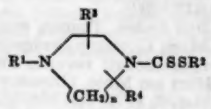
Internal helminth parasites of ruminants are controlled by certain beta-halovinyl esters of phosphorothionic acid.

3,740,430
METHOD FOR INHIBITING DOPAMINE-β-HYDROXYLASE USING PIPERAZINE DERIVATIVES OF DITHIOCARBOXYLATES, AND PHARMACEUTICAL PREPARATIONS THEREOF

Per Arvid Emil Carlsson, Goteborg, Hans Rudolf Corrodi, Molndal, and Gosta Lennart Florwall and Svante Bertil Ross, Sodertalje, Sweden, assignors to Aktiebolag Astra, Sodertalje, Sweden

No Drawing. Original application Dec. 11, 1968, Ser. No. 783,131, now Patent No. 3,644,623. Divided and this application Dec. 16, 1970, Ser. No. 98,948
Int. Cl. A61k *27/00*
U.S. Cl. 424——250 14 Claims

Piperazine derivatives of dithiocarboxylates having the general formula



a process for their preparation, and a method for the ... hibition of the enzyme dopamine-β-hydroxylase wherein a therapeutically effective dose of a pharmaceutically acceptable preparation of a compound of the said general formula is administered orally, rectally or by means of an injection to produce a sedative effect.

3,740,431
PYRIMIDINE FUNGICIDE

Margaret Claire Shephard, Maidenhead, and Brian Kenneth Snell, Twyford, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Jan. 28, 1970, Ser. No. 6,566
Claims priority, application Great Britain, Feb. 6, 1969, 6,469/69
Int. Cl. A01n *9/22*
U.S. Cl. 424—251 1 Claim

The compound 5-n-butyl-4-hydroxy-6-methyl-2-methylaminopyrimidine and fungicidal uses of this compound.

3,740,432
VITAMIN COMPLEXES OF NIACINAMIDE, RIBOFLAVIN AND SODIUM ASCORBATE

Louis Magid, Clifton, N.J., assignor to Hoffmann-La-Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of application Ser. No. 672,958, Oct. 5, 1967. This application Feb. 16, 1971, Ser. No. 115,721
Int. Cl. A61k *15/12*
U.S. Cl. 424—252 5 Claims

Complexes of niacinamide and riboflavin as well as niacinamide, riboflavin and sodium ascorbate are described. These complexes are hard, free-flowing granules which can be directly compressed into tablets.

3,740,433
ANTI-ANXIETY COMPOSITION AND METHOD OF USE

Donald E. Clody, Somerset, Bernard Beer, Princeton, John Vogel, South Bound Brook, and Zola P. Horovitz, East Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Filed Oct. 1, 1971, Ser. No. 185,822
Int. Cl. A61k *27/00*
U.S. Cl. 424—253 9 Claims

Disclosed herein is a composition of a pharmaceutically acceptable carrier and a xanthine-type moiety which has been found to have significant anti-anxiety activity.

3,740,434
SUBSTITUTED NITROIMIDAZOLYLTHIADIAZOLES AND OXADIAZOLES AS ANTIPROTOZOAL AGENTS

Gerald Berkelhammer, Princeton, and Goro Asato, Titusville, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Application Apr. 22, 1970, Ser. No. 30,944, now Patent No. 3,666,860, which is a continuation-in-part of abandoned application Ser. No. 814,160, Apr. 7, 1969, which is a continuation of application Ser. No. 659,596, Aug. 10, 1967, now Patent No. 3,452,035, which in turn is a continuation-in-part of abandoned application Ser. No. 604,158, Dec. 23, 1966. Divided and this application Jan. 12, 1972, Ser. No. 217,709
Int. Cl. A61k *27/00*
U.S. Cl. 424—267 8 Claims

The use of substituted nitroimidazolyl-thiadiazoles and oxadiazoles are described along with methods of administration of the same. These compounds have been found useful in controlling protozoa and therefore, are antiprotozoal agents.

3,740,435
CERTAIN HETEROCYCLIC ISOTHIOCYANATES USED AS FUNGICIDES

Peter E. Newallis, Leawood, Kans., Albert J. Poje, Grandview, Mo., and Peter F. Epstein, Prairie Village, Kans., assignors to Chemagro Corporation, Kansas City, Mo.

No Drawing. Filed Nov. 20, 1970, Ser. No. 91,543
Int. Cl. A01n *9/18, 9/28*
U.S. Cl. 424—285 5 Claims

Fungicidal compositions of and methods of combatting fungi using, certain heterocyclic alkylthiocyanates and

isothiocyanates, i.e., furfuryl, dihydro and tetrahydro furfuryl, thenyl, chlorothenyl, dihydropyranyl, and picolyl thiocyanates and isothiocyanates, some of which are known, and which may be produced by conventional means.

3,740,436

LOW IMPURITY HYDRAZINE

James G. Rigsby, Lake Charles, La., assignor to Olin Corporation, New Haven, Conn.

No Drawing. Continuation-in-part of application Ser. No. 881,589, Dec. 2, 1969, now U.S. Patent No. 3,652,218, dated Mar. 28, 1972. This application June 10, 1971, Ser. No. 151,928

Int. Cl. C01c *1/00*

U.S. Cl. 423—407 6 Claims

Purification of aqueous solutions of hydrazine and lower alkyl hydrazines by the removal of sodium and other cations, chloride, carbonate and other anions from aqueous solutions of such hydrazines. The product solutions have, at most, extremely low limits of ionic impurities.

3,740,437

NAPHTHYLOXYACETIC ACIDS AND PHARMACEUTICAL COMPOSITIONS AND METHODS THEREOF

Ian T. Harrison and John H. Fried, Palo Alto, Calif., assignors to Syntex Corporation, Panama, Panama

No Drawing. Continuation-in-part of abandoned application Ser. No. 608,970, Jan. 13, 1967. This application June 25, 1970, Ser. No. 49,967

Int. Cl. A61k *27/00*

U.S. Cl. 424—317 3 Claims

Naphthyloxyacetic acids having optional substitution in the ring carbons and the α carbon of the acetic acid moiety and the corresponding amide, ester, and addition salts thereof which compounds are useful as anti-inflammatory, analgesic, antipyretic and antipruritic agents as well as fibrinolytic and hypocholesterolemic agents. The compounds per se and pharmaceutical compositions incorporating, and pharmaceutical methods employing these compounds are disclosed.

3,740,438

METHODS AND COMPOSITIONS FOR INDUCING RESISTANCE TO BACTERIAL INFECTIONS USING CERTAIN LYSINE DERIVATIVES

Elton S. Cook, Kinji Tanaka, and Akira Fujii, Cincinnati, Ohio, assignors to Stanley Drug Products, Inc., Portland, Oreg.

No Drawing. Filed May 27, 1971. Ser. No. 147,658

Int. Cl. A61k *27/00*

U.S. Cl. 424—319 6 Claims

A variety of substances are reported which alter host resistance to cocci and bacilli bacterial infections. Nevertheless, because of the extreme difficulty of total eradication, and the frequent reappearance of the same strains, even after their apparently successful elimination, there is a continuing need for drugs for the treatment of coccic infections. Certain lysine derivatives have been found effective in inducing resistance to infections due to cocci and bacilli.

3,740,439

TREATING HYPERTENSION WITH β-AMINO-ALKANE CARBOXYLIC ACIDS

Kurt Eichenberger, Therwil, Christian Egli, Rheinfelden, and Phyllis Roberta Hedwall, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

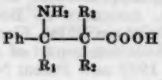
No Drawing. Filed June 18, 1969, Ser. No. 834,535

Claims priority, application Switzerland, June 24, 1968, 9,340/68

Int. Cl. A61k *27/00*

U.S. Cl. 424—319 6 Claims

The invention concerns pharmaceutical preparations containing as antihypertensive ingredients β-amino-alkane carboxylic acids of the formula



(I)

in which Ph stands for a phenyl group substituted by at least one hydroxyl group and each of R_1, R_2 and R_3 is hydrogen or lower alkyl, in the form of mixtures of isomers or of pure isomers, or salts thereof. It also relates to compounds of the Formula I, in which Ph, R_1, R_2 and R_3 have the previously given meaning in the form of mixtures of isomers or of pure isomers with the proviso that compounds of the Formula I, in which Ph is monohydroxyphenyl or 3,4-dihydroxyphenyl and each of R_1, R_2 and R_3 is hydrogen, are in the form of optically active antipodes, as well as salts thereof; these compounds show antihypertensive properties.

3,740,440

METHOD OF INHIBITING APPETITE FOR FOOD

Zalmon Pober, Beaver Brook Apts., 154 2nd St., Apt. 311, Framingham, Mass. 01701

No Drawing. Filed June 22, 1970, Ser. No. 48,441

Int. Cl. A61K *27/00*

U.S. Cl. 424—320 3 Claims

A process for regulating the appetite of animals for foodstuffs comprising administering, to the gastrointestinal tract of the animals, an effective quantity of a local anesthetic which is substantially non-absorbable into other portions of the body. One such agent is that known as oxethazine, most conveniently ingested as one of the physiologically-tolerable salts thereof.

3,740,441

ALPHA-ARYL-N-LOWER ALKYL NITRONE-CONTAINING COMPOSITIONS USEFUL AS ANTI-MICROBIAL AGENTS

Kenneth P. Dorschner, and James A. Albright, Jacksonville, Fla., assignors to SCM Corporation, Cleveland, Ohio

No Drawing. Filed May 3, 1971, Ser. No. 139,867

Int. Cl. A01n *9/20, 21/00*

U.S. Cl. 424—327 7 Claims

Novel compositions comprising an inert diluent or carrier and an alpha-aryl-N-lower alkyl nitrone are described. The compositions are advantageous in that they have activity over a wide spectrum of phytopathogenic micro-organisms while, at the same time, they are not phytotoxic to selected crop and ornamental plants. Also described are processes for controlling plant pathogens in soil by treatment of the soil or seeds which are to be incorporated in soil.

3,740,442

2-ISOPROPYLAMINOBENZOPHENONES IN TREATING INFLAMMATION

Hans Ott, Pfeffingen, Basel-Land, Switzerland, assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Continuation of application Ser. No. 787,253, Dec. 26, 1968, which is a continuation-in-part of application Ser. No. 741,804, July 1, 1968, which is a continuation-in-part of application Ser. No. 707,932, Feb. 26, 1968, which in turn is a continuation-in-part of application Ser. No. 672,739, Oct. 4, 1967, all now abandoned. This application Jan. 14, 1972, Ser. No. 217,941

Int. Cl. A61k *27/00*

U.S. Cl. 424—330 2 Claims

Disclosed are 2-isopropylaminobenzophenones having pharmaceutical activity in animals and useful, for example, as anti-inflammatory agents.

3,740,443

BRADYCARDIA COMPOSITIONS

Herbert Koppe, Ingelheim, Albrecht Engelhardt, Mainz, Gerhard Ludwig, Lippramsdorf, and Karl Zeile, Ingelheim, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhine, Germany

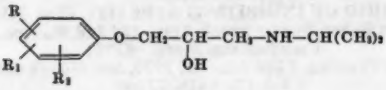
No Drawing. Continuation-in-part of application Ser. No. 821,137, May 1 1969 now Patent No. 3644,636, which is a continuation-in-part of application Ser. No. 619,741, Feb. 28, 1967, now Patent No. 3,459,782, which in turn is a continuation-in-part of abandoned application Ser. No. 391,012, Aug. 20, 1964. This application Feb. 22, 1971, Ser. No. 117,773.

Claims priority, application Germany, Aug. 26, 1963, B 73,262; June 24, 1966, B 87,707; Dec. 30, 1966, B 90,543; and Feb. 6, 1967, B 91,070

Int. Cl. A61k *27/00*

U.S. Cl. 424—330 12 Claims

Bradycardia compositions having N - isopropyl-noradrenaline antagonistic activity and method of inducing said activity in warm-blooded animals using as the active ingredient at least one 1-substituted phenoxy-2-hydroxy-3-N-isopropylamino propane of the formula



wherein R is selected from the group consisting of hydrogen, halogen, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, hydroxyalkyl of 1 to 4 carbon atoms, hydroxycarbonyl, alkoxycarbonyl of 1 to 4 carbon atoms, alkenyl of 2 to 4 carbon atoms, alkynyl of 2 to 4 carbon atoms, alkylthio of 1 to 4 carbon atoms and cyano, R_1 is $-(CH_2)_x-NH_2$ where x is an integer from 0 to 3 and R_2 is selected from the group consisting of hydrogen, halogen, alkyl of 1 to 4 carbon atoms and alkoxy of 1 to 4 carbon atoms, either as a racemate or an optically active isomer, or its nontoxic, pharmaceutically acceptable acid addition salt.

3,740,444

THERAPEUTIC COMPOSITIONS AND METHOD

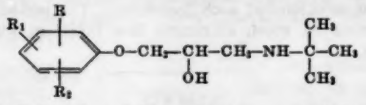
Herbert Koppe, Ingelheim (Rhine), Albrecht Engelhardt, Mainz (Rhine), and Karl Zeile, Ingelheim (Rhine), Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim (Rhine), Germany

No Drawing. Continuation-in-part of application Ser. No. 700,376, Jan. 25, 1968, now Pat. No. 3,541,130. This application May 12, 1970, Ser. No. 36,676

Int. Cl. A61k *27/00*

U.S. Cl. 424—330 11 Claims

A composition having bradycardia and isoproterenol activity comprising at least one compound selected from the group consisting of racemates of 1-phenoxy-2-hydroxy-3-tert.-butylamino propanes of the formula



(I)

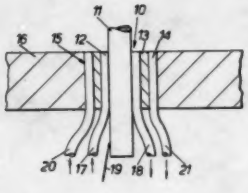
wherein R is selected from the group consisting of alkynyloxy of 2 to 4 carbon atoms, $-(CH_2)_{x+1}-OH$, $-(CH_2)_x-CN$ and $-(CH_2)_x-NH_2$, where x is an integer from 0 to 3, COOH and COOR′ where R′ is alkyl of 1 to 4 carbon atoms; R_1 is selected from the group consisting of hydrogen, alkoxy and alkylthio of 1 to 4 carbon atoms, —CN and alkenyl and alkynyl of 2 to 4 carbon atoms and R_2 is selected from the group consisting of hydrogen, halogen and alkyl and alkoxy of 1 to 4 carbon atoms, their optically active isomers and their nontoxic, pharmaceutically acceptable acid addition salts of said racemates and said optically active isomers and a major mount of a pharmaceutical carrier and method of producing bradycardia and suppressing tachycardia effects of N-isopropyl-noradrenaline in warm-blooded animals.

ELECTRICAL

3,740,445
ELECTRODE ASSEMBLIES

Donald Charlsworth, Cuddington, England, assignor to Pilkington Brothers Limited, Liverpool, England

Filed Apr. 12, 1972, Ser. No. 243,372
Claims priority, application Great Britain, Apr. 16, 1971, 9,691/71
Int. Cl. C03b 5/02
U.S. Cl. 13—6 **6 Claims**

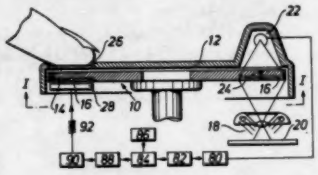


An electrode assembly for insertion in a wall of a glass melting furnace comprises cooling means surrounding the electrode where it passes through the furnace wall, an insulating refractory sleeve surrounding the cooling means and further cooling means surrounding the insulating sleeve. Cooling of the insulating sleeve maintains it at a high resistivity level.

3,740,446
PERCEPTION APPARATUS FOR THE BLIND

Bengt Anders Benson, Styckjunkargatan 5, Stockholm, Sweden

Filed Dec. 27, 1971, Ser. No. 212,090
Int. Cl. G09b 21/00; G06k 9/00
U.S. Cl. 35—35 A **8 Claims**

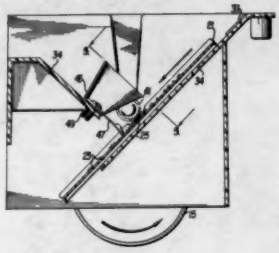


A perception apparatus to aid the blind is provided in the form of a scanning disc of the Nipkow type having a spiral pattern of apertures adapted to scan in sequence an optically formed image, the scanning pulses controlling a high-frequency pulse generating system with low power, high tension output in the form of pulses of Tesla character capable of creating tactile stimulation of the human skin, which pulses are supplied to contact pegs insulatedly embedded in, and flush with the surface of, the scanning disc or a member associated therewith, said pegs being oriented in a spiral pattern corresponding to that of the scanning apertures. The tactile pulses are delivered to a picture gate onto which the blind user places a finger tip to receive through said gate a tactile display of the scanned image. The arrangement of the generator system and the control system is such that the low power, high tension tactile pulses are only transmitted when the scanning apertures detect a change of illumination, from light to darkness or vice versa, or both.

3,740,447
MUSIC BOX

Michael Langieri, Jr., Little Falls, N.J., assignor to Questor Corporation, Toledo, Ohio

Filed Feb. 16, 1972, Ser. No. 226,873
Int. Cl. G10f 1/06
U.S. Cl. 84—101 **7 Claims**

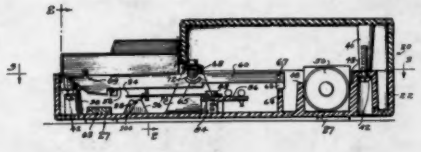


A music box including a housing having a musical comb mounted therein. Rigid cards having protuberances on one face are mechanically driven along a guide surface so as to pass under and pluck the tines of the comb. The comb may be mounted to the interior of a bell.

3,740,448
ORGAN DROP-IN KEY ASSEMBLY

Robert F. Olszowka; Howard M. Thomas, and Ray F. Gong, all of North Tonawanda, N.Y., assignors to The Wurlitzer Company, Chicago, Ill.

Filed Apr. 12, 1971, Ser. No. 133,162
Int. Cl. G10h 1/00
U.S. Cl. 84—1.01 **16 Claims**



An organ is provided with a molded plastic case. The lower portion of the case has integral protuberances therein for supporting various structures including a key switch and key biasing assembly. All of the keys are preassembled on a single pivot rod, and the pivot rod is installed in saddles integral with the case whereby simultaneously to mount all of the keys, and to position the keys for cooperative action with the key switches and with the springs for biasing the keys, other structures likewise being simply dropped into place.

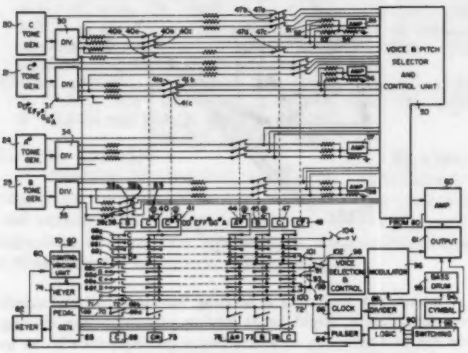
3,740.449
ELECTRIC ORGAN WITH CHORD PLAYING AND RHYTHM SYSTEMS

James S. Southard, Elkhart, Ind., assignor to C. G. Conn Ltd., Elkhart, Ind.

Filed June 24, 1971, Ser. No. 156,326
Int. Cl. G10h 1/00
U.S. Cl. 84—1.01 **12 Claims**

The electric organ of the invention includes tone generators and frequency dividers for providing musical tones extending through a number of octaves. Tones in different octaves are

combined to provide desired tone characteristics. A pedal board controls a pedal generator which provides bass tones, and selectively couples tones from the dividers to provide major and minor chords associated with the pedal tones



played. A rhythm system is provided for chopping or modulating the chords in different rhythm patterns, and to provide percussion sounds and bass sounds in the various rhythm patterns. Logic and switching circuits control the rhythm patterns.

3,740,450

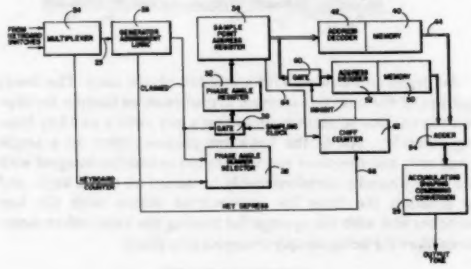
APPARATUS AND METHOD FOR SIMULATING CHIFF IN A SAMPLED AMPLITUDE ELECTRONIC ORGAN

Ralph Deutsch, Sherman Oaks, Calif., assignor to North American Rockwell Corporation, El Segundo, Calif.

Filed Dec. 6, 1971, Ser. No. 204,853

Int. Cl. G10h *1/02*

U.S. Cl. 84—1.24 **6 Claims**



A sampled amplitude electronic organ embodies first and second memories storing groups of amplitude samples that, respectively, delineate energy levels of the wave shape of a musical tone, and energy levels of the wave shape having the dominant energy of a third harmonic or its equivalent of the musical tone. The groups of amplitude samples are read out at rates determined according to actuation of a number of keyboard switches so that the repetition rate of the group as read from the memory is the chosen frequency of the musical tone to be produced by operation of an actuated keyboard switch. The two groups of amplitude samples are added for about the first seven cycles of read out to thereby introduce a transient chiffing wave to the initial portion of the primary tone to be generated.

3,740,451

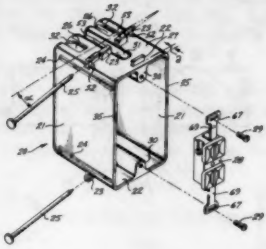
MOLDED ELECTRICAL JUNCTION BOX

Edgar C. Schindler, Seattle, and John C. McEachron, Tacoma, both of Wash., assignors to Nelco Corporation, Kent, Wash.

Division of Ser. No. 69,266, Sept. 3, 1970, Pat. No. 3,701,451. This application June 22, 1972, Ser. No. 265,342

Int. Cl. H02g *3/12*

U.S. Cl. 174—58 **2 Claims**



An electrical junction box characterized by the provision of knockouts provided in the walls of the outlet box which are accessible from the interior of the box for easy removal. The junction box, which is constructed of an injection moldable resinous material having insulating properties, is provided with tapered ribs on the exterior surface of the side walls to properly orient the box with respect to the wall yet provide sufficient draft angle to enable injection molding. Additional volume on the interior of the electrical outlet box is provided by a lateral extension of the box constructed and arranged to fit within the wall structure. Grounding means for use with the boxes is provided wherever necessary.

3,740,452

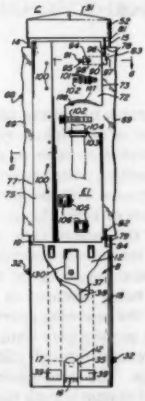
PEDESTALS FOR ELECTRICAL CIRCUIT COMPONENTS

Theodore M. Bunten, Rydal, Pa., assignor to Repco Products Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. Nos. 192,253, Oct. 26, 1971, abandoned, and Ser. No. 212,942, Dec. 28, 1971. This application Feb. 10, 1972, Ser. No. 225,069

Int. Cl. H02g *9/02*

U.S. Cl. 174—38 **17 Claims**



A hollow vertical pedestal or terminal housing is disclosed having a bottom section for support and cable entrance and with a removable cable guard plate, and an upper section, the upper front portion being readily removable, carried on the main portion of the housing with access upon removal to the interior into which cables and the like to be connected are terminated, the upper section having a vertical interior com-

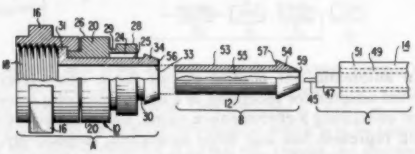
ponent mounting plate removably carried on vertical pivots at one side, the mounting plate having locking mechanism holding the plate in one position, permitting in another position partial swinging movement of the mounting plate for access, and in still another position permitting further swinging movement and removal for complete access. The mounting plate has improved provisions for attachment of electrical circuit components including grounding clamps. Alternative mounting plates and brackets are shown. The removability of the cable guard plate and the component mounting plate permits of removal of the pedestal in the event of damage without the necessity for reconnection or replacing of conductors. A protective shield of flexible dielectric material may be provided to enclose the circuit components and provide a dielectric shield, a dust shield and a snow and weather shield.

3,740,453

ADAPTER FOR COAXIAL CABLE CONNECTOR

John David Callaghan, Cherry Hill, and Robert Morris Wilson, Medford Lakes, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,370
Int. Cl. H02g *15/08*
U.S. Cl. 174—75 C **1 Claim**



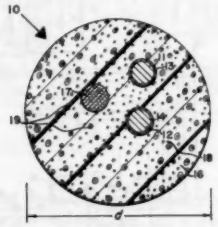
An adapter consists of a hollow cylinder of conductive or non-conductive material adapted to fit as a sleeve within the hollow shaft portion of an F-56 male, coaxial connector. The cylinder has a shaped end which assists an RG59/U type coaxial cable to slip over the hollow shaft of the F-56 type connector with the dielectric and inner conductor fitting on the inside of the hollow cylinder and the outer conductor and outer insulation of the cable fitting over the outside of the F-type connector's hollow shaft.

3,740,454

CONTROLLED BUOYANCY ELECTRICAL STRAND

Rudolph P. Arndt; William W. Ulmer, and Daniel G. Stone, all of Muskegon, Mich., assignors to The Anaconda Company, New York, N.Y.

Filed Jan. 6, 1972, Ser. No. 215,858
Int. Cl. H01b *7/12*
U.S. Cl. 174—101.5 **11 Claims**



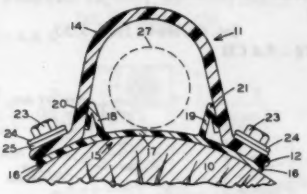
A fine expendable wire strand with a slow, predetermined sinking rate in sea water is formed of enamel-film insulated conductors covered, along with a tensile strand, by a polymeric foam, interspersed with glass bubbles.

3,740,455

TAMPER-RESISTANT GUARD DUCT FOR ELECTRIC POLE RISER CABLES

J. Hebden Willox, 917 Newcastle Avenue, Westchester, Ill.

Filed Mar. 29, 1972, Ser. No. 239,039
Int. Cl. H02g *3/04, 7/20*
U.S. Cl. 174—101 **1 Claim**



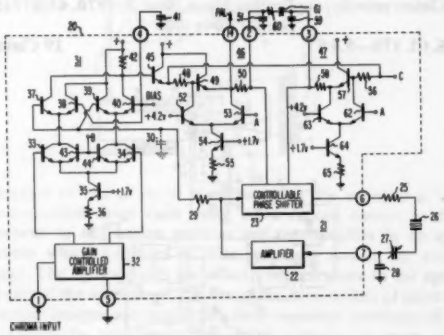
A guard duct for enclosing the insulated riser cable used for connecting underground cables to pole-supported overhead conductors has (1) an outer guard member adapted for attachment to an upstanding pole, the outer guard member having a generally trough-shaped cable-receiving passageway extending linearly therealong and (2) an inner coextensive backplate member transversely spanning the cable-receiving passageway, the backplate member having a pair of hook-shaped integral projections extending linearly along the inner surface of the trough-shaped passageway and constituting an interior barrier effective to obstruct the entrance to the cable passageway of foreign objects inserted into the duct from the outside.

3,740,456

ELECTRONIC SIGNAL PROCESSING CIRCUIT

Leopold Albert Harwood, Somerville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 10, 1972, Ser. No. 242,321
Int. Cl. H04n *9/50*
U.S. Cl. 178—5.4 SD **17 Claims**



A sample and hold detector arrangement suitable for construction in integrated circuit form as an automatic chroma gain control detector, or a color oscillator AFPC detector, or the like. A wide bandwidth analog multiplier circuit is supplied with an intermittent reference signal and a second signal, the phase or amplitude of which is to be sampled. Pulses produced across the broad-band load are processed by a sample and hold circuit which provides substantially symmetrical bidirectional conduction to a filter capacitor during the sampling interval and a high holding impedance during the remainder of each cycle. A differential switching circuit provides rapid transition between the sample and hold functions.

3,740,457

REPRODUCTION OF MULTICOLOUR SCENES AND PRINTS IN MULTICOLOUR TELEVISION

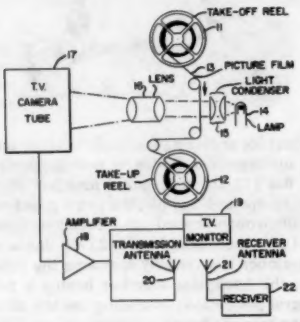
Louis Achilles Meeussen, Mortsel, and Roger Joseph Huybrechts, Brussel, both of Belgium, assignors to Gevaert-Agfa N. V., Mortsel, Belgium

Filed Mar. 12, 1969, Ser. No. 806,447

Claims priority, application Great Britain, Mar. 13, 1968, 12,244/68

Int. Cl. H04n 5/84, 9/53

U.S. Cl. 178—5.4 CD 13 Claims



A process of electronically reproducing for television transmittal by conventional reproduction and transmittal equipment multicolor photographic film which has an overall optical contrast or gamma within the range of 0.5–0.7 so that conventional electronic modification of the electronic signal can be omitted.

3,740,458

IMAGE PICKUP TUBE

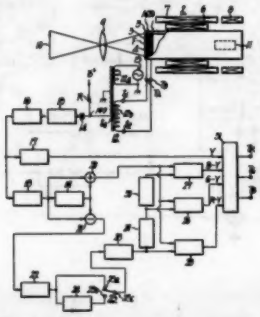
Yasuharu Kubota, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 72,593, Sept. 16, 1970. This application Aug. 31, 1971, Ser. No. 176,553

Claims priority, application Japan, Sept. 3, 1970, 45/87715

Int. Cl. H04n 9/06

U.S. Cl. 178—5.4 ST 19 Claims



An image pickup tube for a color television camera has a photoconductive layer for the conversion of images projected thereon into an electrical output and onto which a color separated image of an object to be reproduced is projected through a color filter which is part of the tube or separate therefrom, indexing electrodes disposed in close proximity to the photoconductive layer to electrically produce an index image on such layer in response to the application of different voltages to the indexing electrodes so that the electrical output is a composite signal containing a color video signal corresponding to the color separated image and an index signal corresponding to the index image and by which individual color component signals may be separated from the color video signal, and photoelectric transducing means, such as, photoconductive cells, photodiodes, photoswitches, phototransistors or photovoltaic cells, included in the image pickup tube and forming parts of circuits by which voltage differences are applied to the indexing electrodes for establishing the index image.

3,740,459

AUTOMATIC TINT CONTROL CIRCUIT

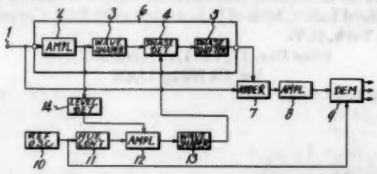
Hisao Okada, Midori-ku, Yokohama-shi, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Sept. 27, 1971, Ser. No. 183,803

Claims priority, application Japan, Sept. 25, 1970, 45/83882

Int. Cl. H04n 9/12

U.S. Cl. 178—5.4 HE 6 Claims



An automatic tint control circuit for a color television receiver adapted for reception of a composite color television signal containing a chrominance signal, the phase and level of which represent hue and color saturation, respectively. The circuit automatically imparts a phase corresponding to proper flesh tone to a chrominance signal which has a phase in a predetermined phase area that includes the phase of flesh tone and which has a signal level lower than a predetermined value.

3,740,460

AUTOMATIC CONTROL CIRCUIT FOR TELEVISION SOUND CARRIER

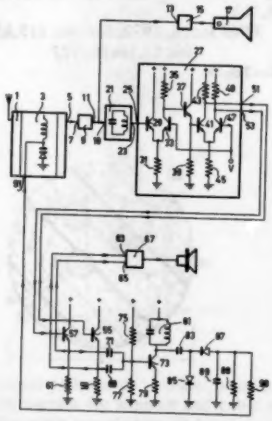
Kian Kie Ong, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 24, 1971, Ser. No. 174,355

Claims priority, application Netherlands, Aug. 29, 1970, 7012829

Int. Cl. H04n 5/60

U.S. Cl. 178—5.8 A 8 Claims

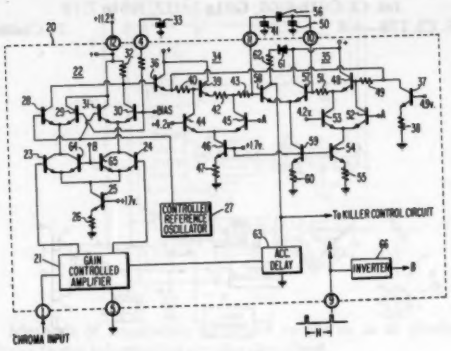


An automatic sound carrier suppression filter tuning circuit active on a detected intercarrier signal, which circuit includes an edge steepness detector after a limited circuit for the purpose of detecting the intercarrier signal.

3,740,461
DETECTOR CIRCUITS WITH SELF-REFERENCED BIAS

Leopold Albert Harwood, Somerville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 10, 1972, Ser. No. 242,322
Int. Cl. H04n 9/50
U.S. Cl. 178—5.4 SD 9 Claims

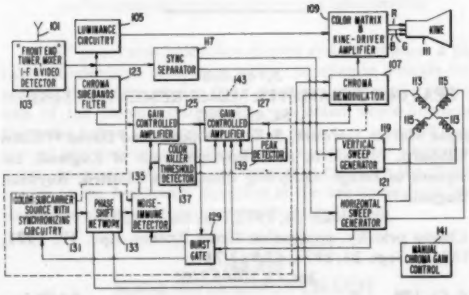


A sample and hold arrangement is disclosed having two similar detectors which operate in a complementary manner during each operating cycle. One detector is keyed on during a sampling interval to store information which is to be sampled while the second detector is keyed off. During the remaining part of each cycle, the second detector is keyed on to store quiescent level information while the first detector is keyed off. The sampled information and quiescent level information are applied to a differential comparator to produce an output signal substantially independent of quiescent level variations.

3,740,462
AUTOMATIC CHROMA GAIN CONTROL SYSTEM

Leopold Albert Harwood, Somerville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 10, 1972, Ser. No. 242,466
Int. Cl. H04n 9/48
U.S. Cl. 178—5.4 AC 10 Claims

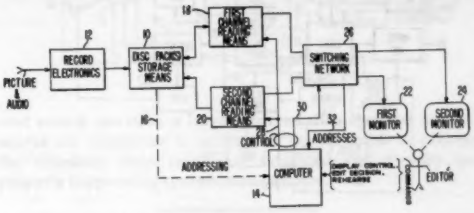


Cascaded first and second gain-controlled amplifiers are used in the chrominance channel of a color television receiver. The gain of the first amplifier is controlled by an ACC loop employing a noise-immune detector to detect color burst information. The gain of the second amplifier is controlled by the output of a peak detector which detects picture-interval information at the output of the second amplifier. An ACC system with improved performance during the reception of noisy signals results.

3,740,463
IMPROVED EDITING SYSTEM

Jerry R. Youngstrom, Sunnyvale; Wilfred K. Anderson, San Jose; Martin Wallace Fletcher, Palo Alto; Caljon H. Strobele, Los Altos Hills, and Kenneth T. Taylor, Menlo Park, all of Calif., assignors to Memorex Corporation, Santa Clara, Calif.

Filed Feb. 16, 1971, Ser. No. 115,673
Int. Cl. H04n 5/76
U.S. Cl. 178—6.6 A 11 Claims

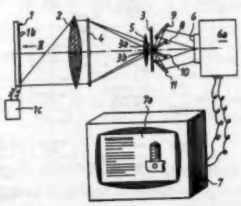


A system for recording and randomly selecting and reproducing audio-video information signals is provided with means for encoding audio and frame code information signals within video information signals.

3,740,464
APPARATUS FOR SIMULTANEOUS REPRODUCTION OF IMAGES OF SELECTED SUPERIMPOSED PICTURES

Friedrich Bestenreiner, Grunwald; Reinhold Deml; Josef Helmberger, both of Munich, and Josef Pfeifer, Uterhaching, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Mar. 18, 1971, Ser. No. 125,474
Claims priority, application Germany, Mar. 21, 1970, P 20 13 584.6
Int. Cl. G02b 5/18; G11b 7/16; H04n 7/18
U.S. Cl. 178—6.8 18 Claims



Images of two or more pictures which are exposed in superimposition upon each other on a record carrier in the presence of diffraction gratings are reproducible in an apparatus which employs at least one light source for each image. The light sources are offset with reference to the optical axis of the apparatus. The first diffraction orders of pairs of selected images are projected onto separate portions of a photocathode tube in a television camera or onto the photocathode tubes of two discrete television cameras so that the selected images can be viewed on separate portions of the picture tube of a single television receiver or on the picture tubes of two discrete television receivers.

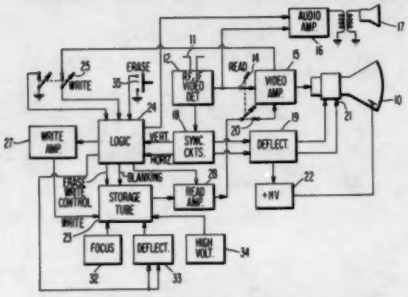
3,740,465
TELEVISION FRAME STORAGF APPARATUS

Denis Peter Dorsey, Levittown, Pa., assignor to RCA Corporation, New York, N.Y.

Filed June 14, 1971, Ser. No. 152,746
Int. Cl. H01j 29/41; H04n 5/76, 7/18
U.S. Cl. 178—6.8 4 Claims

There is disclosed a television storage system which utilizes a storage device of the type having a target, which comprises a

plurality of insulators arranged on a substrate; the insulators can be charged by a controlled electron beam to store a television image. Circuitry is shown which enables the coupling of such a storage device to a television receiver to permit operation of the system in a READ, WRITE and ERASE mode. This enables the consumer to store any desired television frame for later playback and further offers the advantage of changing the stored frame when desired.



3,740,466

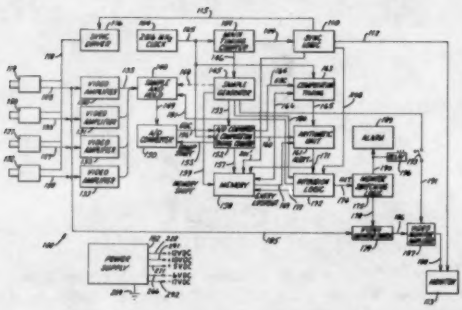
SURVEILLANCE SYSTEM

James M. Marshall, Melbourne Beach, and James W. Biglow, South Melbourne Beach, both of Fla., assignors to Jackson & Church Electronics Company, Inc., Satellite Beach, Fla.

Filed Dec. 14, 1970, Ser. No. 98,002

Int. Cl. H04n *7/18*

U.S. Cl. 178—6.8 **27 Claims**



A method and apparatus by which surveillance can be maintained over a domain for detecting changes of interest in the domain and ignoring other changes. A parameter of the domain under surveillance is scanned resulting in an electrical signal which is sampled. The resulting sample signals each correspond to an individual sample point or line segment in the domain under surveillance and are digitized. Digitized samples are stored in a memory unit. An arithmetic unit based on a Karnaugh mapping technique compares to current sample with a prior sample from the memory unit for the same sample point or segment in the domain and provides an alert signal when these differ by more than a predetermined amount. A plurality of scanning devices may be provided to a monitor. If an alert occurs, an intrusion logic unit determines if an alert signal previously occurred during a prior scanning period for the same scanning device and if so an alarm is actuated and the monitor is switched to display the signal from that scanning device.

3,740,467

APPARATUS FOR INSPECTING THE APPEARANCE OF PRODUCTS

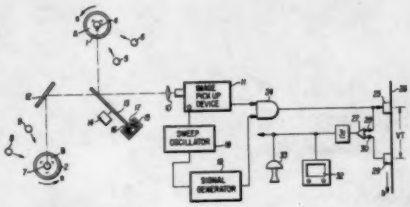
Moritada Kubo, and Yoshiaki Arimura, both of Tokyo, Japan, assignors to Tokyo Shibaura Electric Company, Ltd., Kawasaki-shi, Kanagawa-ken

Filed Dec. 30, 1971, Ser. No. 214,288

Claims priority, application Japan, Dec. 31, 1970, 45/123630

Int. Cl. G01b *9/08*; **G01n** *21/32*; **H04n** *7/18*

U.S. Cl. 178—6.8 **11 Claims**



An apparatus for inspecting the appearance of products is provided and includes an image pickup tube for photographing an image of a standard product whose appearance is complete and an image of a sample product whose appearance is to be inspected and for generating two video signals respectively corresponding thereto. Means are provided for delaying one of the two video signals which corresponds to either the standard product of the sample product. Further means are provided for comparing the delayed video signals corresponding to either the standard product or the sample product and the non-delayed video signals which correspond to the other of the two video signals to thereby obtain a comparison therebetween. In accordance with the comparison between the image signals of the standard product and the same of the sample product, it can be readily determined if the appearance of the sample product is the same or different from that of the standard product and accordingly whether a defect exists or not.

3,740,468

FEATURE PARAMETER MEASUREMENT BY LINE SCANNING

Gerald Marvin Gardner, Saffron Walden, and David William Gibbard, Melbourn, near Royston, both of England, assignors to Image Analysing Computers Limited, Royston, England

Filed Mar. 28, 1972, Ser. No. 238,893

Claims priority, application Great Britain, Apr. 17, 1971, 9,738/71; Sept. 21, 1971, 43,912/71

Int. Cl. H04n *3/00*

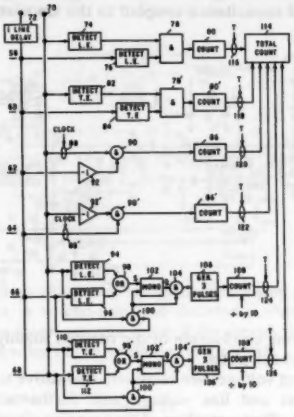
U.S. Cl. 178—6.8 **24 Claims**

Methods and apparatus are described by which various dimensional measurements of features can be made using electrical pulses obtained from a video signal itself obtained by scanning the field or an image thereof.

Methods and apparatus specifically described relate to vertically and horizontally projected length measurements and perimeter measurement.

Measurements may be made simultaneously on all features in a field and total values obtained for the field without knowledge of the individual length measurements. Alternative

methods and apparatus are described by which individual measurements are possible on each detected feature.



Methods of combining measured values so as to produce shape factor information are also described.

3,740,469

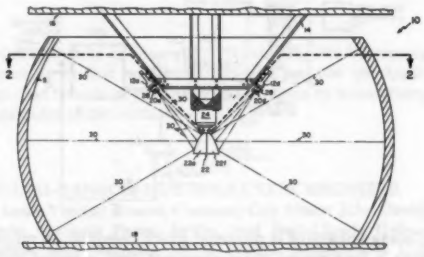
REFLECTIVE PANORAMIC T.V. PROJECTION SYSTEM

John W. Herndon, Orlando, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 19, 1972, Ser. No. 245,415

Int. Cl. H04n *7/00*

U.S. Cl. 178—6.8 **7 Claims**



A 360° panoramic television display system employs a plurality of television projection tubes operating in a single-line-scan mode and located in fixed positions around the vertical axis of the display system. The projected single-line-scans from the tubes are mediated by a reflective assembly contoured and faceted such that, when rotated, the single-line-scans, oriented vertically, are caused to move on the display screen in the horizontal direction at the television field rate, thus generating a television raster through 360°.

3,740,470

NOISE SUPPRESSION CIRCUIT

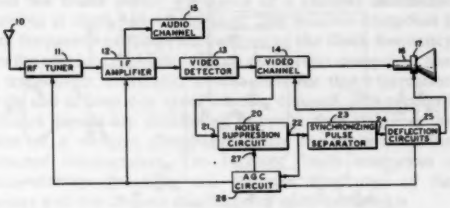
Dong Woo Rhee, Williamsville, N.Y., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Dec. 30, 1971, Ser. No. 214,265

Int. Cl. H04n *5/08*

U.S. Cl. 178—7.3 S **12 Claims**

A noise suppression circuit for television receivers suitable for implementation in integrated circuit form on a monolithic semiconductor chip is shown. Noise pulses of an amplitude greater than the synchronizing pulse amplitude are detected and a signal indicative of the presence of the noize pulses is used to turn on a transistor connected between an amplifier and a source of reference potential to suppress the noise pulses. First and second current sources where the second current source provides a larger current than the first current source are connected in series with the transistor to prevent the transistor from remaining saturated and thereby improperly suppressing synchronizing pulses.



3,740,471

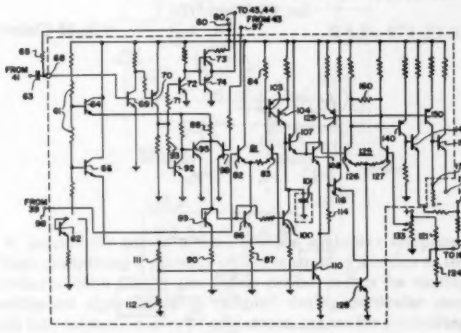
AUTOMATIC GAIN CONTROL CIRCUIT

Milton E. Wilcox, Mesa, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Division of Ser. No. 71,125, Sept. 10, 1970, Pat. No. 3,697,883. This application Feb. 24, 1972, Ser. No. 229,230

Int. Cl. H04n *5/52*

U.S. Cl. 178—7.3 R **7 Claims**



A gated sample and hold IF/RF integrated AGC circuit for a television receiver employs a combination of the synchronizing pulse and a flyback pulse for gating a peak detected video signal during the sync pulse interval to obtain the AGC voltage. A differential amplifier provides RF delay for the RF AGC, with negative feedback from the differential amplifier to the input of the IF AGC amplifier being employed to hold the IF AGC amplifier output constant during a transition period when the RF gain control is varied. Before and after this transition, the IF gain control follows the AGC voltage provided by the gated AGC input circuit.

3,740,472

WIDTH CONTROL CIRCUIT FOR A TELEVISION RECEIVER

William Vincent Fitzgerald, Jr., Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

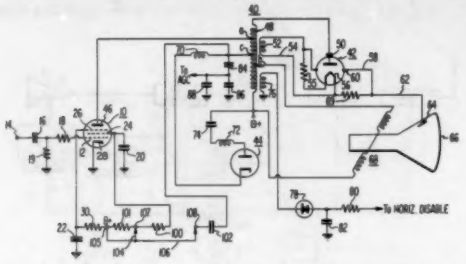
Filed Nov. 24, 1971, Ser. No. 201,683

Int. Cl. H04n *3/22*

U.S. Cl. 178—7.5 SE **4 Claims**

Resistor and capacitor type width controls are combined in a manner to utilize the advantages of each in optimizing television picture reproduction, but in a manner to constrain the high voltages produced by the receiver's horizontal deflection

circuit under incorrect adjustment conditions. Such combination can be used to reduce the possibility of the high voltage



developed for the cathode-ray picture tube increasing to a value at which X-radiations can be produced.

3,740,473

TELEVISION RECEIVER HAVING A PHASE COMPARISON CIRCUIT AND A GAIN CONTROL CIRCUIT

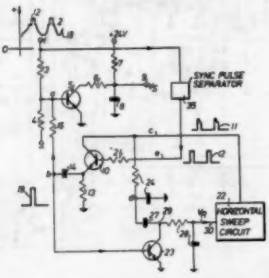
Wilfried von der Ohe, Ludersen, Germany, assignor to Licentia Patent Verwaltungs GmbH, Frankfurt, Germany

Filed Sept. 16, 1970, Ser. No. 72,666

Claims priority, application Germany, Sept. 19, 1969, P 19 47 524.2; Jan. 28, 1970, P 20 03 655.9

Int. Cl. H04n *5/20*

U.S. Cl. 178—7.5 R **15 Claims**



In a television receiver, the line frequency keying pulses applied to the respective control electrodes of the phase-frequency comparison circuit for the line synchronism and/or the video gain control circuit, are produced in an AND circuit to whose inputs are applied the line sync pulse and a line frequency pulse generated in the horizontal sweep circuit, i.e., the line flyback pulse.

3,740,474

VOLTAGE SUPPLIES

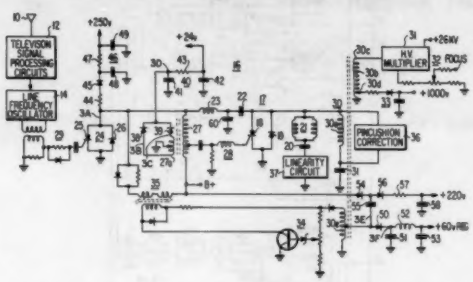
Wolfgang Friedrich Wilhelm Dietz, New Hope, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 1, 1971, Ser. No. 194,389

Int. Cl. H04n *5/44*

U.S. Cl. 178—7.5 R **11 Claims**

Direct operating voltages for a television receiver are derived from an associated line scanning circuit of the type employing semiconductor (e.g., SCR) trace and commutating switches, each of which conducts for a portion of each line scanning interval. One voltage supply is derived by means of a full wave rectifier circuit coupled to an input inductance, the inductance being coupled from a main direct operating voltage source to a circuit point intermediate the trace and commutating switches. Additional direct voltages are derived by rectifying flyback pulses produced across various segments of an associated scanning output transformer. At least one of the flyback pulse rectifying circuits includes an arrangement of inductance and capacitance coupled to the associated rectifier



for constraining conduction of the rectifier mainly to the first half of the flyback pulse.

The derived voltages are relatively insensitive to changes in beam current and line voltage and, furthermore, do not deleteriously affect operation of the scanning circuit.

3,740,475

APPARATUS FOR PRODUCING CODING PULSE SEQUENCES

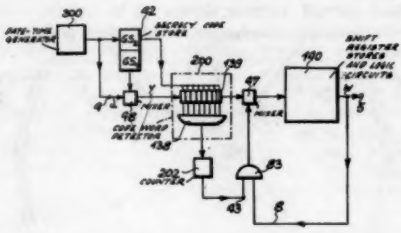
Kurt Ehrat, Zurich, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

Filed Aug. 16, 1971, Ser. No. 172,135

Claims priority, application Switzerland, Aug. 24, 1970, 12592/70

Int. Cl. H04l *9/00*

U.S. Cl. 178—22 **15 Claims**



Coding apparatus is provided which comprises a mixer for mixing a long-period pulse sequence with a secret code to produce a code pulse sequence which is fed to a number of shift registers interconnected by logic circuits so that each code pulse is defined by the binary values of previously occurring control pulses, the time duration of these previously occurring control pulses being made variable in dependance on the secret code.

ERRATUM

For Class 178—69.5 TV see:
Patent No. 3,740,489

3,740,476

SPEECH SIGNAL PITCH DETECTOR USING PREDICTION ERROR DATA

Bishnu Saroop Atal, Murray Hill, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

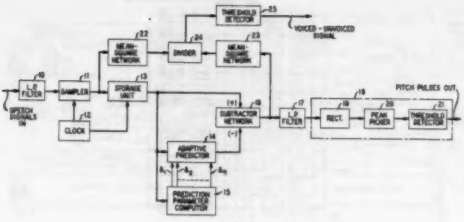
Filed July 9, 1971, Ser. No. 161,173

Int. Cl. G10l *1/04*

U.S. Cl. 179—1 SA **8 Claims**

Pitch periods in a complex speech signal are determined by evaluating the error in predicting the value of a sample of the

signal on the basis of past sample values, and by locating samples for which the prediction error is large. Advantageously, the prediction error signal is devoid of all formant structure,



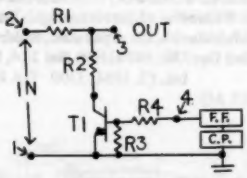
so that there is no chance of confusing pitch signal peaks with formant peaks. A voiced-unvoiced decision is obtained from the ratio of the mean-squared value of the speech signal to the mean-squared value of the prediction error signal.

3,740,477

SIMPLE SPEECH SCRAMBLER

Henry N. Switsen, 17236 Bircher Street, Granada Hills, Calif.

Filed Sept. 16, 1971, Ser. No. 180,966
Int. Cl. H04l 9/00
U.S. Cl. 179—1.5 R **9 Claims**



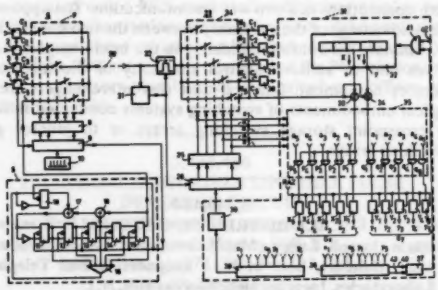
A system to make common speech unintelligible by causing the speech to be first broken up into high and low amplitude sections, and then to be made intelligible again by normalizing the amplitudes of the sections.

3,740,478

PSEUDO-RANDOM MULTIPLEX SYNCHRONIZER

Pierre Louis Vincent Breant, Clamart; Guy Albert Jules David, Thiasis; Francois Pares, Juvisy, and Jean-Claude Grima, Chatillon sous Bagneux, all of France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 19, 1971, Ser. No. 190,555
Int. Cl. H04j 3/06
U.S. Cl. 179—15 BS **8 Claims**



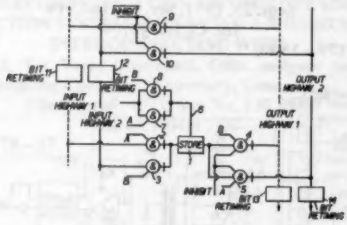
The invention relates to a time division multiplex signal transmission system using pulse code modulation, in which the transmitter comprises a plurality of channels for the information signals and at least one synchronizing channel to which a pseudo-random signal generator applies the multiplex synchronizing code pulses. The information signal pulses and the synchronizing code pulses are cyclically distributed in time within the frame period by means of a channel distributor operating at clock pulse frequency. The receiver comprises a clock frequency extractor for recovering the clock frequency from the received multiplex signals and further comprises, like the transmitter, a plurality of channels for the information signals and at least one synchronizing channel. The received multiplex signals are distributed in cyclic time sequence by means of a channel distributor under the control of the recovered clock pulses. The receiver finally comprises a device for synchronizing the channel distributor of the receiver with the channel distributor of the transmitter.

3,740,479

IMPROVEMENTS IN OR RELATING TO JUNCTORS

William Harry Francis Green, and John Brian Terry, both of Essex, England, assignors to The Marconi Company Limited, London, England

Continuation of Ser. No. 26,731, April 18, 1970. This application Mar. 20, 1972, Ser. No. 236,273
Int. Cl. H04j 3/16
U.S. Cl. 179—15 AQ **3 Claims**



A junctor for use in a time division multiplex telephone system comprising a plurality of stores equal in number to the number of time slots in one frame period, means for routing intelligence signal samples sampled during particular time slots into respective ones of said stores, means for controlling said stores such that said samples are stored for predetermined periods, means for routing each of said samples out of the respective store at the end of the respective predetermined period as another intelligence signal sample sampled during another particular time slot is routed into said store.

3,740,480

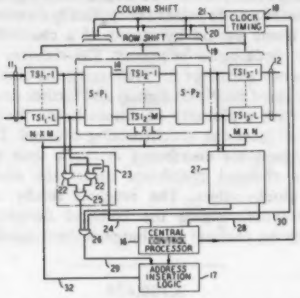
TIME DIVISION MULTIPLEX SWITCHING SYSTEM UTILIZING ALL TIME DIVISION TECHNIQUES

Roy Stephen Krupp, Rumson, and Lawrence Andrew Tomko, Middletown, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 27, 1971, Ser. No. 212,089
Int. Cl. H04j 3/16
U.S. Cl. 179—15 AQ **14 Claims**

Time slot interchangers in each of plural input time division multiplex signal paths to a switching network shift input time slot signals to respective operational time slots corresponding to different switching circuits. A mass serial-parallel converter takes all of the input path signals from the mentioned interchangers in each time slot and steers them in series to the switching circuit corresponding to that operational time slot. Further, time slot interchangers shift the signals in the respective switching circuits to new time slot positions corresponding to different output circuits. Another converter steers the new time slot signals from all of the switching circuits in series to the output circuit corresponding to that new time slot.

Finally, time slot interchangers in each of the output circuits shift the signals in their respective output circuits to destination time slot positions thereby completing both the line switching and the time slot interchanging operations.



3,740,481

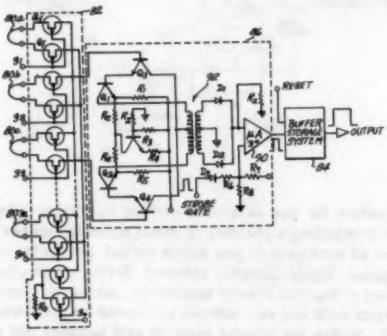
SENSE LINE COUPLING STRUCTURES CIRCUITS FOR MAGNETIC MEMORY DEVICE

Shi Kyu Lee, Kent, Wash., assignor to The Boeing Company, Seattle, Wash.

Division of Ser. No. 855,227, Dec. 15, 1969. This application Sept. 29, 1971, Ser. No. 184,919

Int. Cl. H04j *3/04*

U.S. Cl. 179—15 BL **1 Claim**



Sense line and sense amplifier configurations and circuits for coupling to magnetic memory elements. A sense line comprising a twisted pair of conductors provides coupling along its length to the memory elements. A pair of sense lines may be connected in series or parallel to provide sense signal output pulses of increased amplitude or provide redundancy in the sensing scheme. Further permutations and combinations of the twisted pair sense line provide sense signal output pulses of different amplitude to also provide, e.g., half select pulses. A sense amplifier system utilizes multiplexing techniques to simplify the sense scheme and reduce the amount of circuitry required between the sense lines and the buffer system.

3,740,482

TIME DIVISION MULTIPLEX TELEPHONE SYSTEM WITH PARALLEL TRANSMISSION

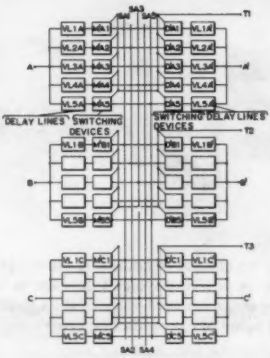
Karl-Ludwig Plank, Oberroden, and Michael Schwarzer, Frankfurt am Main-Schwanheim, both of Germany, assignors to Telefonbau und Normalzeit GmbH, Frankfurt am Main, Germany

Continuation of Ser. No. 833,833, April 14, 1969, abandoned. This application Oct. 26, 1971, Ser. No. 192,304

Int. Cl. H04j *3/04*

U.S. Cl. 179—15 A **3 Claims**

A time division telephone system adapted to greatly increase the message pathways that can be established between two central offices. Each message to be transmitted is sampled sequentially, these samples are stored temporarily at the transmitting end of the system, simultaneously transmitted by transmitting means including a plurality of buses to the receiving end of the system, and are there reconstituted in the original sampling sequence and supplied to a receiving set.



3,740,483

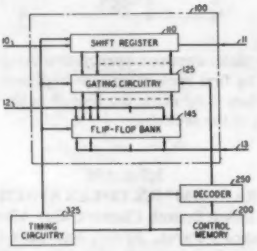
TIME DIVISION SWITCHING SYSTEM WITH BILATERAL TIME SLOT INTERCHANGERS

Thomas Josef Pedersen, Lincroft, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 30, 1971, Ser. No. 214,144

Int. Cl. H04j *3/00*

U.S. Cl. 179—15 AQ **7 Claims**



A bilaterial time slot interchanger with two registers and means for interchanging the contents of one register with those of the other is used in a time division multiplex communication system to provide time slot interchange functions for both connections in a two way communication. The apparatus takes advantage of the symmetry between the two connections to eliminate hardware redundancy in the interchangers themselves and to achieve control simplicity in the associated memory equipment. Bilateral time slot interchangers are, in typical embodiments of switching systems connected in links to crosspoint storage switching arrays or to junctor gate switching arrays.

3,740,484

CALL DISTRIBUTING SYSTEM

William Joseph Laggy, Middletown, and Harold Frederick May, Holmdel, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

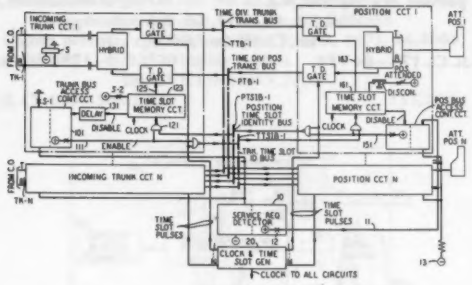
Filed Sept. 21, 1971, Ser. No. 182,364

Int. Cl. H04j *3/00*

U.S. Cl. 179—18 J **20 Claims**

A time division call distributing system for connecting trunks to operator positions is disclosed. The system includes

a four-wire time division bus, with each trunk and position being assigned a permanent time slot in the transmit direction. A trunk requesting connection to a position activates a two-stage lockout circuit which enables the requesting trunk and



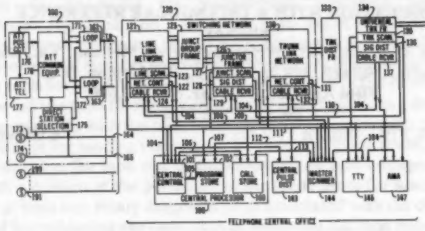
an idle position. When a trunk and position are enabled, they transmit to each other over an identity bus, a pulse in their respective permanently assigned transmit time slots. These pulses are utilized to store, in the trunk and the position circuits, time slot information for the receive direction.

3,740,485

CENTRAL OFFICE PRIVATE BRANCH EXCHANGE TELEPHONE SYSTEM

Charles Nickerson, Poulsbo, Wash., assignor to American Telephone and Telegraph Company, New York, N.Y.

Filed Nov. 24, 1971, Ser. No. 201,918
Int. Cl. H04m *3/58*
U.S. Cl. 179—18 AD **7 Claims**



Private branch exchange service is provided by the switching network of a telephone central office. The PBX attendant is provided with a console which includes circuitry for completing calls to PBX subscriber stations through the use of dial transfer circuits in the central office. Loops for the PBX attendant console comprise lines of the central office which are associated with a PBX main station directory number and the PBX subscriber stations also employ lines of the central office. However, these stations can be reached only through the action of the PBX attendant's console and the PBX stations do not have directory numbers of the telephone offices associated therewith.

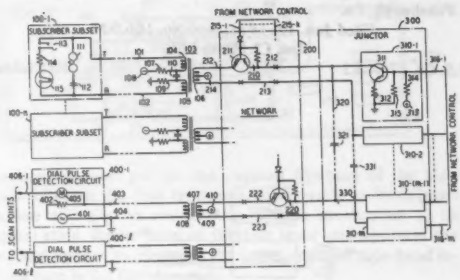
3,740,486

TELEPHONE SUBSCRIBER LINE DIAL PULSE DETECTOR CIRCUIT

Laimons Freimanis, Chicago, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 1, 1971, Ser. No. 203,585
Int. Cl. H04m *3/22*
U.S. Cl. 179—18 FA **3 Claims**

A service circuit arrangement for detecting telephone subset hookswitch and dialing operations through a subscriber line-transmission network transformer coupling. Applicable particularly to solid state network systems, the circuit provides for the detection of the impedance difference presented to an alternating sensing current by the subscriber line during



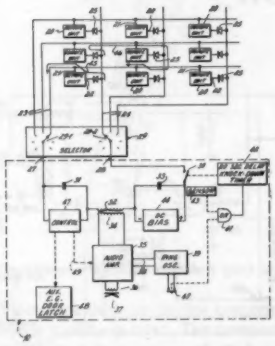
closed and open circuit states. The past necessity of providing detection circuits on a per-line basis in view of the direct current blocking transformers is thus eliminated.

3,740,487

INTERCOMMUNICATION AND REMOTE UNIT SELECTION SYSTEM EMPLOYING A MINIMUM OF INTERCONNECTING WIRE

William B. Ter Veen, Cincinnati, Ohio, assignor to Scovill Manufacturing Company, Waterbury, Conn.

Filed Apr. 5, 1971, Ser. No. 130,898
Int. Cl. H04m *5/00*
U.S. Cl. 179—37 **45 Claims**

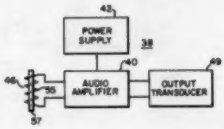


A two way intercommunication system for selectively interconnecting one or more central units and individual remote units of an apartment building or the like. Included in the intercom systems are circuit features for providing selectivity, privacy, security and remote control. A basic two-wire embodiment uses two terminal units for two-way communication with the direction of the conversation controlled at the central unit by signals from the selected remote unit. Remote unit selection is made from the central unit. The selection concepts are employed in more sophisticated embodiments to control systems having seperate common audio lines for the remote units. A minimum of interconnecting wire is maintained throughout the different embodiments. Zener diodes are employed to prevent sneak paths and allow for reduction in the amount of wire used without the sacrificing of desirable features.

3,740,488
INDUCTIVE LOOP THROUGH-THE-EARTH COMMUNICATION SYSTEM

Robert F. Linfield, Boulder; Arnold J. Farstad, North Glen; James W. Allen, Longmont, and Lawrence Ball, Boulder, all of Colo., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 13, 1971, Ser. No. 106,034
Int. Cl. H04b 5/00
U.S. Cl. 179—82 10 Claims

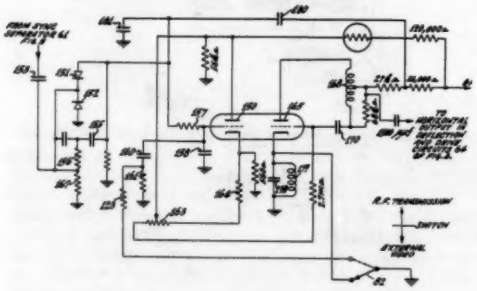


A transmitter having a long line antenna grounded at both ends transmits audio signals through the earth to one or more receivers in a mine. Each receiver has a simple audio amplifier coupled to a loop antenna which compensates for greater attentuation of the higher audio frequencies being transmitted.

3,740,489
HORIZONTAL OSCILLATOR CONTROL FOR PLURAL OPERATING MODE TELEVISION RECEIVERS

Donald Henry Willis, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Division of Ser. No. 832,291, June 11, 1969. This application Dec. 13, 1971, Ser. No. 207,458
Int. Cl. H04n 5/04
U.S. Cl. 178—69.5 TV 3 Claims



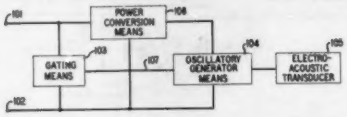
A television receiver is disclosed which is capable of operating in any one of a plurality of modes.

The receiver has circuitry enabling it to respond to a conventional radio frequency transmission in one mode. An external monitor mode is available by disabling the receiver's front end processing circuitry and switching an input terminal of the receiver's video amplifier to an output terminal of an external amplifier, whose bias is controlled by the receiver's own keyed AGC circuit. The external biased controlled amplifier injects a signal into the receiver's video amplifier of a magnitude comparable to the magnitude of a signal appearing in the video amplifier during a radio frequency transmission mode, enabling the receiver circuitry to perform substantially similar.

3,740,490
TONE RINGER

Robert Francis M. McAlonie, Lincroft; Helmuth Otto Sautter, Middletown, and David Carlaw Trimble, Holmdel, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 18, 1971, Ser. No.
Int. Cl. H04m 1/00
U.S. Cl. 179—84 VF4 19 Claims

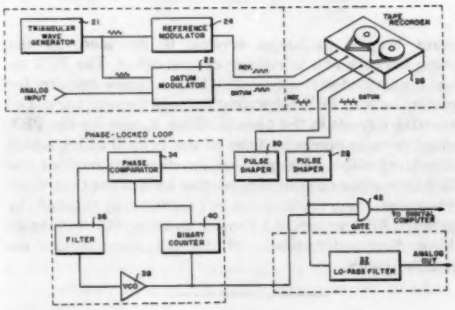


A tone ringer circuit for use in a telephone set employs gating means for discriminating between valid ringing signals and unwanted transients, oscillatory generator means for energizing an output tranducer, and pwoer conversion means for deriving ringing power from the input signal. The alidity of the ringing signal is determined by measurement of the energy content of a portion of each signal cpcle. The basi tone ringer may be modified to permit realization of a distinctive ringing capacility.

3,740,491
DIGITAL MAGNETIC TAPE RECORING SYSTEM USING SYMMETRICAL DIFFERENTIAL PULSE WIDTH MODULATION WITH A TRIANGULAR REFERENCE SIGNAL

George W. Cook, 1637 Wrightson Drive, McLean, Va., and Robert G. Stilwell, 318 2nd St. S.E., Washington, D.C.

Filed Apr. 23, 1971, Ser. No. 136,690
Int. Cl. G11b 5/06
U.S. Cl. 179—100.2 R 6 Claims



The present invention relates to a recording system capable of providing either an analog or a digital output signal. The system includes: a symmetrical triangular wave generator; information signal sensing transducers; pulse width modulator means for producing a symmetrical output pulse signal; semi-permanent real-time recording means for recording the modulator output pulses; and output means for providing both an analog and digital output signal from the system.

3,740,492

CARTRIDGE AND TAPE STRETCH PLACEMENT WITH BREAKS FOR ONE OR BOTH REELS

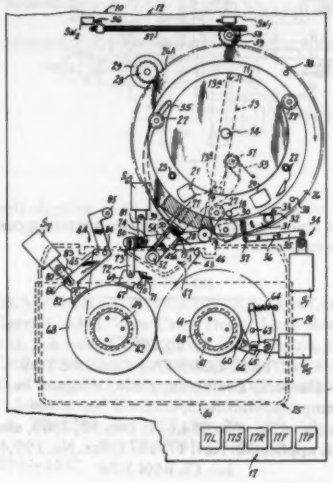
Katsu Inaga, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 223,552, Feb. 4, 1972. This application Apr. 12, 1972, Ser. No. 243,333

Claims priority, application Japan, Feb. 9, 1971, 46/5505; Apr. 23, 1971, 46/32510 (utility model)

Int. Cl. G11b *15/66, 23/04*

U.S. Cl. 179—100.2 ZA 15 Claims



In an apparatus for magnetically recording and/or reproducing signals on a magnetic tape which is wound on, and extends between a pair of reels preferably contained in a cassette, reel support and drive members are engageable with the reels for rotating a selected one of the reels in the direction to wind the tape thereon, a tape loading and unloading device is engageable with the tape between the reels and is selectively operable for loading the tape on a cylindrical guide drum, that is, drawing the tape out of the cassette and into engagement with a portion of the periphery of the guide drum for scanning by at least one rotary magnetic head associated with the drum, and for unloading the tape, that is, removing the tape from the drum periphery, and brakes are provided which are engageable with the reel support and drive members and controlled for preventing rotation of both reels at the conclusion of each recording, reproducing, fast-forward or rewind operations of the apparatus, and for permitting rotation of only one of the reels during loading and unloading operations of the device provided therefor, so that the tape is unwound only from that one reel during each loading operation and rewound on that one reel during the next unloading operation.

3,740,493

MAGNETIC TAPE HEAD INDEXING ASSEMBLY FOR CARTRIDGE TYPE TAPE PLAYER

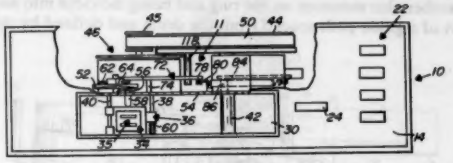
William B. Huber, Park Forest, Ill., assignor to Motorola Inc., Franklin Park, Ill.

Filed Dec. 1, 1971, Ser. No. 203,572

Int. Cl. G11b *21/08, 23/04*

U.S. Cl. 179—100.2 CA 9 Claims

A tape head indexing assembly for a cartridge type tape player includes a first lever arm, one end of which is coupled pivotally to a pawl engageable with a ratchet wheel mounted on a rotatable tape head indexing cam. The opposite end of the first lever arm is attached to a first end of a coil spring included in a bistable mechanism; the opposite end of the coil spring being attached to the free end of a second lever arm also included in the bistable mechanism. Energization of a low power solenoid mounted adjacent the second lever arm pulls in the armature to snap the second lever arm from a first to a second stable position; the last described movement also pivoting the first lever arm to rotate the indexing cam in a first



direction. A reset pin on the capstan flywheel of the tape player engages the first lever arm to return it to its original position and also to restore the bistable mechanism to its original state. Restoration of the first lever arm operates the pawl and ratchet to complete the rotation of the tape head indexing cam in the first direction.

3,740,494

ELECTROMECHANICAL VIBRATION PICK-UPS AND RECORD PICK-UPS WITH FIELD EFFECT TRANSISTORS

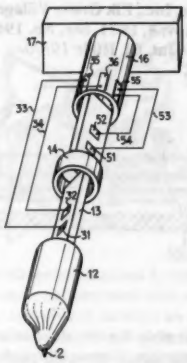
Andre Dunand; Jacques Jarry, and Maurice Gloanec, all of Paris, France, assignors to Sescosem-Societe Europeene de Semiconductors et de Microelectronique, Paris, France

Filed Nov. 22, 1971, Ser. No. 200,780

Claims priority, application France, Nov. 24, 1970, 7042166

Int. Cl. H04r *21/04*

U.S. Cl. 179—100.41 K 7 Claims



A new electromechanical vibration pick-up device is provided.

A transducer type pick up device comprises a rigid component carrying a pick-up head. The component is rendered flexible by insertion into a gap of said component, of a semiconductor chip flexible in one direction only. Said semiconductor converts mechanical stresses into electrical signals received by adequate electric means.

3,740,495

MAGNETIC RECORDING AND/OR REPRODUCING APPARATUS WITH AUTOMATIC TAPE LOADING AND UNLOADING DEVICE

Nobutoshi Kihara, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Feb. 9, 1971, Ser. No. 113,988

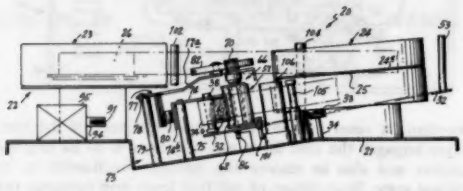
Claims priority, application Japan, Feb. 14, 1970, 45/12887; Feb. 14, 1970, 45/12888

Int. Cl. G11b *5/52, 23/08*

U.S. Cl. 179—100.2 T 35 Claims

A magnetic recording and reproducing apparatus of the type having a tape guide drum and at least one rotary head to

scan a tape wrapped on the drum is provided with a device for automatically wrapping the tape on the guide drum, for example, from a cassette or cartridge containing the tape. Such device has a rotatable support, in the form of a ring, extending around the drum and carrying guides, and a tape engaging member also mounted on the ring and being movable into and out of a guide path spaced from the drum and defined by the



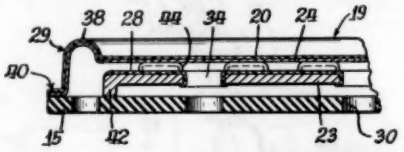
guides. The tape engaging member, in an inactive condition of the apparatus, is displaced out of the guide path to engage the tape in the cassette or cartridge, and is moved into the guide path upon turning of the ring to draw a loop of the tape from the cassette or cartridge and to wrap one side of the loop about the guide drum while the other side of the loop is engaged by the guides and maintained in the corresponding guide path.

3,740,496

DIAPHRAGM ASSEMBLY FOR ELECTRET TRANSDUCER

Elmer Victor Carlson, Prospect Heights, and Mead Clifford Killion, Elk Grove Village, both of Ill., assignors to Industrial Research Products, Inc., Elk Grove Village, Ill.

Filed Nov. 8, 1971, Ser. No. 196,592
Int. Cl. H04r 19/00
U.S. Cl. 179—111 E **7 Claims**



A diaphragm assembly for an electret transducer wherein the diaphragm comprises a movable plate, and a compliant surround on the periphery of the plate. The diaphragm rests on supporting members of a backplate and is positioned to obtain a suitable stiffness of the vibrating portions without the use of a taut or tensioned diaphragm.

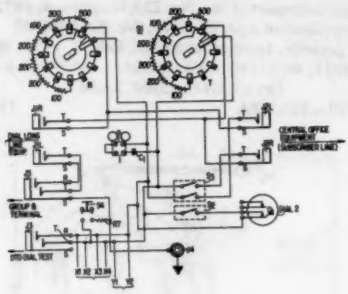
3,740,497

ARTIFICIAL LINE BRIDGE SUBSCRIBER DIAL LONG LINE EQUIPMENT TESTER

Gerald Wallace Daniell, P. O. Box 984, 315 W. McLendon Circle, La Grange, Ga.

Filed June 29, 1971, Ser. No. 158,010
Int. Cl. H04b 3/46
U.S. Cl. 179—175.3 **4 Claims**

A unitary circuit for testing dial long line equipment in a telephone subscriber system having a central office. A resistance bridge operative to provide an equally divided predetermined resistance to balance tip and ring in the telephone system is used to simulate the operation of a cable pair in a long line. Switch means selectively connect the resistance bridge to the dial long line equipment under test, and dialing means are utilized for dialing into or out of the testing circuit to interpose said predetermined resistance between a subscriber connected to the dial long line equipment under test and the central office to determine if the dial long line



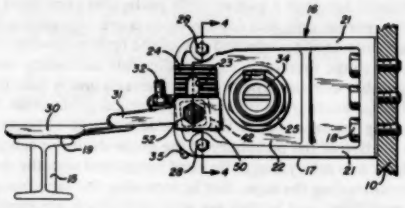
equipment under test is in acceptable operating condition to service the subscriber.

3,740,498

ELECTRIC CURRENT COLLECTOR

Donald L. Herbert, Lexington, Ohio, assignor to The Ohio Brass Company, Mansfield, Ohio

Continuation of Ser. No. 884,621, Dec. 12, 1969, abandoned.
This application Nov. 17, 1971, Ser. No. 199,463
Int. Cl. B60l 5/38
U.S. Cl. 191—49 **4 Claims**



An electric current collector for railway vehicles, having a collector shoe for running engagement with an electrical distribution rail. The current collector shoe is pivotally and resiliently mounted on a support secured to the vehicle by an elastic torsion member carried by the support which torsion member maintains the collector shoe in working engagement with the distribution rails.

3,740,499

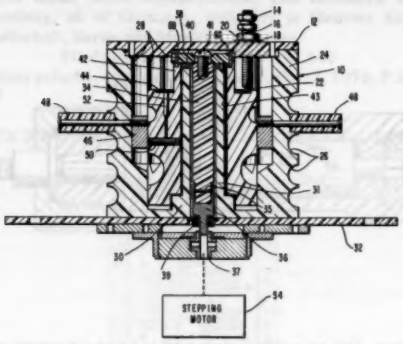
OIL FILLED STEPPING SWITCH

Arthur F. Standing, Rockville, Md., assignor to Communications Satellite Corporation, Washington, D.C.

Filed Apr. 6, 1971, Ser. No. 131,611
Int. Cl. H01h 19/56, 21/76
U.S. Cl. 200—8 R **11 Claims**

A high voltage oil filled stepping switch connects a plurality of DC voltage sources to a common output terminal. The rotor and housing is formed of plastic and contains ap-

propriate grooves and flutes to increase electrical resistance to voltage breakdown while increasing the oil storage space. A



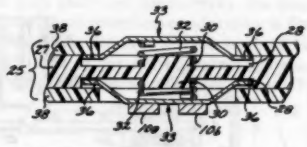
flexible self-aligning shaft incrementally positions the rotor contacts with the housing contacts.

3,740,500

SLIDE SWITCH CUTOVER DEVICE CONTACTOR

Jim C. Garrett, 6331 Vera Crest Drive, Long Beach, Calif.; Robert H. Johnson, 4764 "M" La Villa Marina, Marina Del Ray, Calif.; Jack Shelton, 810 Rancho Drive, Long Beach, Calif., and Louis P. Labarge, Irvine, Calif., assignors to said Garret, Johnson and Shelton, by said LaBarge

Filed Nov. 16, 1971, Ser. No. 199,243
Int. Cl. H01h *15/06*
U.S. Cl. 200—16 C **6 Claims**



The present invention relates to a switching device; and more particularly relates to a switching device that comprises a switching pad that makes and breaks electrical circuits as the switching device is moved from one position to another. The disclosure teaches how such a switching pad may be mounted in a freely floating manner, so that it provides optimal electrical contact at all times, with minimal danger of changing pressure and/or accumulation of corrosion.

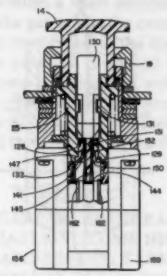
3,740,501

MINIATURE OIL-TIGHT PUSH BUTTON AND SELECTOR SWITCH ASSEMBLY AND IMPROVED CONTACT UNIT THEREFOR

Rudolf H. Kiessling, Glendale, Wis., and Richard C. Rothweiler, Asheville, N.C., assignors to Square D Company, Park Ridge, Ill.

Filed May 4, 1971, Ser. No. 140,152
Int. Cl. H01h *15/00*
U.S. Cl. 200—16 R **21 Claims**

A plurality of modular contact units are adapted for attachment to a housing containing an operating means which may be of either the push-button or selector switch variety. Each contact unit comprises a single pair of contacts and indicating means to display the condition of the pair of contacts. Camming means may be interchangeably attached to the operating means externally of the switch units. Selector switch operation provides maintained switching for up to eight positions, momentary switching, or momentary-maintained switching. Selector switch cams may be double stacked to provide a maximum number of switching programs with a



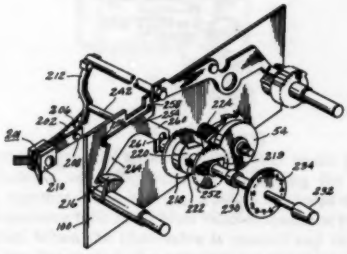
minimum number of parts. The operating means may be illuminated or non-illuminated and is adaptable for use as a pilot light or a push-to-test unit.

3,740,502

ALARM CLOCK TIMER WITH MANUALLY OPERABLE RESET MECHANISM

Robert L. Boyles, Wayland, and Samuel Polonsky, Medway, both of Mass., assignors to General Electric Company, Bridgeport, Conn.

Filed Apr. 7, 1972, Ser. No. 241,963
Int. Cl. H01h *43/04*
U.S. Cl. 200—38 FA **6 Claims**



An alarm clock timer mechanism having a pair of coaxially mounted gear driven cam members with one of the cam members being axially movable to actuate an alarm or other form of control mechanism at a preset alarm time. One of the cam members is provided with a resiliently mounted cam follower which moves axially toward the other cam member at the alarm time. The resilient mounting allows the follower to ride smoothly on a loer surface of the other cam after the alarm time, thus precluding any high torque resetting loads on a timing motor. A manually operable reset mechanism is provided for axially moving the cam members away from each other to move the control mechanism to its off position and to simultaneously reset the resiliently mounted cam follower on an upper surface of the other cam.

3,740,503

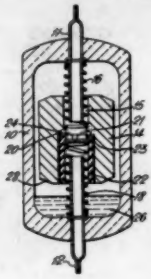
CONDUCTING FLUID INERTIA TYPE SWITCH WITH LINEARLY MOVABLE CONDUCTIVE PLUNGER CONTACT

Kazutaka Tomohiro, and Kenichi Onishi, both of c/o Omron Tateisi Electronics Co., 20, Igadera, Shimokaiinji, Nagaokacho, Otokuni-gun, Kyoto, Japan

Filed May 8, 1972, Ser. No. 250,965
Int. Cl. H01h *35/02, 29/16*
U.S. Cl. 200—61.47 **12 Claims**

A switch which is closed or opened by an external force applied thereto. A weight resiliently suspended in the switch cas-

ing and an electrically conductive liquid in the casing are alternatively caused by an external force applied thereto to move thereby to establish electrical connection between the two switch terminals.

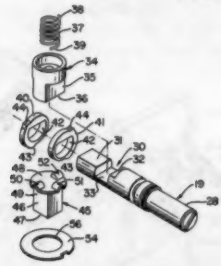


3,740,504

ACTUATOR MEANS FOR A SWITCH CONSTRUCTION AND THE LIKE

George M. Hipple, Jackson Township, Ohio, assignor to Robertshaw Controls Company, Richmond, Va.

Filed May 2, 1972, Ser. No. 249,522
Int. Cl. H01h *21/28*; F16h *21/44*
U.S. Cl. 200—47 22 Claims



An actuator for a switch construction and having an actuator shaft rotatably carried by a housing and being provided with cams thereon. An axially movable plunger is carried by the housing and has a plurality of abutments thereon cooperable with the cams. The plunger is rotatable to be set to one of a plurality of positions thereof relative to the housing so that the abutments cooperate with the cams in selected manners whereby the shaft must be rotated in a selected direction or directions to have one or more of the cams thereof cam against one or more of the abutments and thereby cause axial movement of the plunger to operate the switch construction interconnected to the actuator housing.

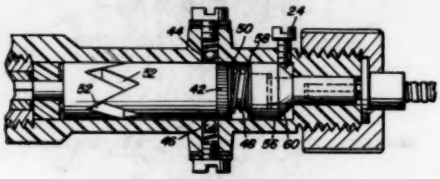
3,740,505

SPEED RESPONSIVE SWITCH

Clifford H. Brady, 329 Hillcrest, R.F.D. No. 4, Sulphur Springs, Tex.

Filed Feb. 3, 1972, Ser. No. 223,196
Int. Cl. H01h *35/06*
U.S. Cl. 200—61.53 14 Claims

A speed responsive switch assembly comprising a housing adapted to be mounted between a conventional speedometer and cable, a first torque transfer member mounted in the housing for rotation by the cable, a second torque transfer member rotatably mounted in the housing and adapted to be connected to the speedometer, the first and second torque transfer members being coupled together through a plurality of motion transfer services angularly offset from the axis of rotation, such that an increase in speed produces longitudinal displacement of the first torque transfer member to effect switching. The assembly is also provided with adjustable compression spring for biasing the first torque transfer member axially toward the second, adjustment of the spring effecting the speed at which switching occurs.

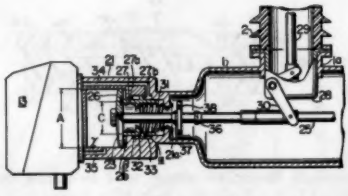


3,740,506

FLUID OPERATED PISTON CIRCUIT BREAKER WITH FLOATING POSITION VALVE ACTUATOR

Yoshio Yoshioka; Kunio Hirasawa, both of Hitachi, and Katsuichi Kashimura, Takahagi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed June 20, 1972, Ser. No. 264,507
Int. Cl. H01h *35/38*
U.S. Cl. 200—82 B 28 Claims

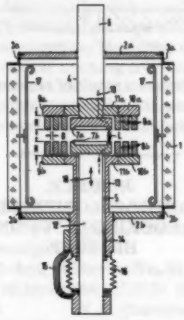


A circuit breaker having an actuating system comprising a signal responsive valve member of large diameter and a making force imparting valve member of small diameter connected to each other by an actuating rod so that a first differential force relationship can be established therebetween. A movable valve seat of diameter smaller than that of the making force imparting valve member is movable toward and away from the signal responsive valve member so that a second differential force relationship can be established between the two valve members when the movable valve seat engages the signal responsive valve member to limit the effective area of the latter. The movable valve seat is moved toward and away from the signal responsive valve member and fluid under pressure applied to the signal responsive valve member is suitably controlled so as to selectively bias the actuating rod in one of the making and breaking directions. A control valve member is disposed in proximity to the movable valve seat so that it moves in response to the movement of the actuating rod in the breaking direction for controlling the application of the fluid pressure to the signal responsive valve member. This control valve member acts to reduce the moving distance of the movable valve seat following the movement of the signal responsive valve member so that the movable valve seat can take a floating position ready to move in the making direction.

3,740,507
VACUUM SWITCH WITH MAGNETICALLY CONTROLLABLE ARC

Wilfried Kuhl, Gross-Schwarzenlohe, and Leonhard Klug, Nurnberg, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Oct. 1, 1971, Ser. No. 185,666
Claims priority, application Germany, Oct. 2, 1970, P 20 48 506.7
Int. Cl. H01b 33/66
U.S. Cl. 200—144 B 7 Claims

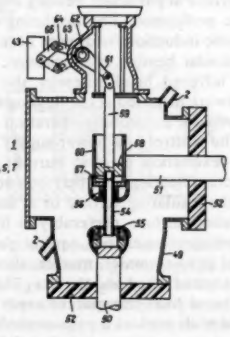


A vacuum switch has at least two electrodes situated in an evacuable insulating housing hermetically sealed by end plates. The electrodes are coaxially positioned and are movable relative to one another. At the ends of their shafts facing each other, the electrodes comprise annular or cylindrically shaped main contact parts and spiral helically shaped spark contact parts which enclose the contact parts and consist of material of good electrical conductivity. The spark contact parts are affixed to a carrier comprising an outer annular disc of material of poor electrical conductivity. An inner annular disc of material of good electrical conductivity is fitted tightly into the outer disc. The distance and thickness of the turns of the spirals or helices of the spark contact parts are dimensioned so that the ratio of distance to thickness is 1:2 to 1:10.

3,740,508
BLOW-PISTON DISCONNECT APPARATUS FOR HIGH VOLTAGE

Willi Olsen, am Leubwald 3, 1 Berlin 13, and Heinz Beer, Osianderweg 8, 1 Berlin 27, both of Germany

Filed June 11, 1971, Ser. No. 152,069
Claims priority, application Germany, June 30, 1970, P 20 33 853.8
Int. Cl. H01b 33/70
U.S. Cl. 200—148 A 6 Claims

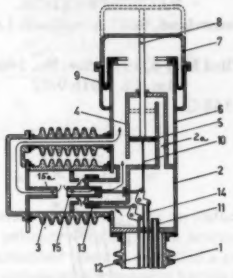


A high-voltage blow-piston disconnect apparatus, for use with an electron-negative gas such as sulfurhexafluoride and the like as an arc extinguishing and insulating gas has a blow-piston disconnect switch which in turn has contacts across which an arc develops when the switch opens under load. The disconnect switch includes a blast mechanism for blasting a quenching stream of the gas across the contacts for extinguishing the arc. A filter is connected to the disconnect switch for removing dissociation products produced when the gas extinguishes the arc. A pump is connected with the filter and the disconnect switch for pumping the gas through the filter independent of the quenching stream, whereby the dissociation products are removed from the gas by the filter.

3,740,509
COMPRESSED GAS CIRCUIT BREAKER HAVING COUPLED VARIABLE-VOLUME HIGH AND LOW PRESSURE CHAMBERS FOR EXPEDITING GAS PRESSURE RECOVERY IN THE HIGH PRESSURE CHAMBER

Henri Clerc, and Dieter Floessel, both of Fislisbach, Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie., Baden, Switzerland

Filed Nov. 18, 1971, Ser. No. 199,869
Int. Cl. H01h 33/54
U.S. Cl. 200—148 B 3 Claims



A columnar type electrical circuit breaker of the gas blast type includes a switching chamber containing the breaker contacts, together with a high gas pressure readiness tank, and a low gas pressure tank and a blast valve mounted at the top of the column. When the blast valve is opened and the switch contacts are disengaged, the contacts are swept over by the high pressure gas discharged through the blast valve from the high pressure tank into the switching chamber, the gas then flowing into the low pressure tank and thence ultimately back into the high pressure tank to replenish the latter after passage through a compressor located at the lower end of the column. The low pressure tank is provided with a movable wall portion acting as a piston which is rigidly connected with a piston forming one end wall of the high pressure tank such that when the gas is discharged into the low pressure chamber it actuates the movable wall piston thereof in such direction as to increase the volume of the low pressure tank and simultaneously, and to the same extent, decrease the volume of the high pressure tank, thus maintaining the gas pressure in the latter at its initial high value and in readiness for a subsequently and rapidly reoccurring switching out operation.

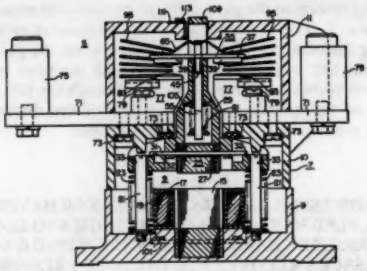
3,740,510
CONTACTOR WITH IMPROVED CONTACT MEANS

Kurt A. Grunert, Beaver, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Division of Ser. No. 853,271, Aug. 27, 1969, Pat. No. 3,602,850. This application Apr. 21, 1971, Ser. No. 136,058
Int. Cl. H01h 9/00
U.S. Cl. 200—166 K 2 Claims

A contactor comprises improved contact means. The stationary contact structure comprises a conducting support with a contact and arc-runner supported thereon such that the arcs

leaving the stationary contact move directly onto the arc-runner. The stationary contact structure is constructed to facilitate removable mounting thereof on a conductor. A



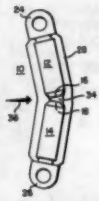
metallic shield member is provided to protect the insulating material of the insulating contact carrier from the heat and impact of the bridging contact structure.

3,740,511

VACUUM SWITCH

Julius C. Westmoreland, 6607 Avenida de La Pescas, La Jolla, Calif.

Filed May 6, 1971, Ser. No. 140,855
Int. Cl. H01h *9/02*
U.S. Cl. 200—168 G **9 Claims**



A sealed electrical switch is disclosed which includes a first conductive element and a second conductive element. The second conductive element is positioned with its first end in abutting relationship with the first end of the first conductive element, with the abutting surfaces of the conductive elements forming the contacts of the switch. Electrical terminals are connected to the other ends of the conductive elements, and an elastomer coating surrounds all of the switch except the electrical terminals.

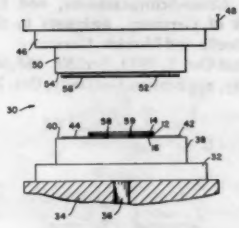
3,740,512

METHOD FOR ADHERING FRICTION MATERIAL TO RING-LIKE ELEMENT

David C. Mitchell, Bloomfield Hills, and Charles W. Latreille, Detroit, both of Mich., assignors to D.A.B. Industries, Inc., Detroit, Mich.

Filed Dec. 6, 1971, Ser. No. 204,859
Int. Cl. H05b *5/08*
U.S. Cl. 219—10.41 **4 Claims**

A method is provided for adhering friction material to a metallic ring-like element to form clutch elements of the type generally utilized in automatic transmissions. In a preferred embodiment, the ring-like element is precoated with an adhesive material on both sides. The adhesive is then dried to a non-tacky state. A ring of friction material is then positioned on either side of the metallic ring-like element. This assembly is then placed in a press which includes an electrically conductive ring which constitutes a one turn coil. The press is closed to apply pressure to the assembly. At the same time, alternating current is caused to flow in the one turn coil to create a magnetic field which induces current flow in the metallic ring-like element. The flow of current causes the metallic ring-like



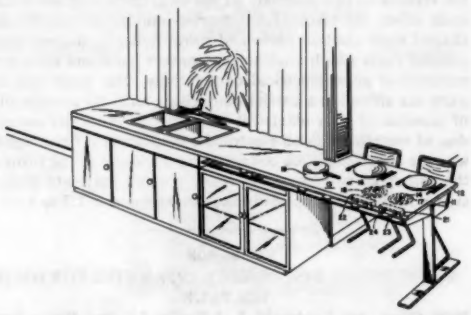
element to become hot as a result of resistance and hystereses losses. The heat causes the adhesive material to bond the friction material to the metallic ring-like element.

3,740,513

IMPROVED CONSUMER ORIENTED COMBINED COUNTER AND COOKING UNIT USING INDUCTION HEATING

Philip H. Peters, Jr., Greenwich, and John L. Matrone, Schenectady, both of N.Y., assignors to Environment/One Corporation, Schenectady, N.Y.

Filed Sept. 23, 1971, Ser. No. 183,005
Int. Cl. H05b *1/02*
U.S. Cl. 219—10.49 **17 Claims**



An improved combined counter and electric cooking unit using induction heating coils for inductively heating metal base cookware. The unit is formed by a housing having a substantially continuous insulating top surface of an attractive appearance covering the top of the housing and a plurality of induction heating coils supported within the housing beneath the insulating surface at particular heating site locations where heating is to be performed. The insulating surface is transparent to magnetic induction fields with little or no losses and includes at particular heating site locations, areas which are transparent to infrared head whereby the temperature of metal base cookware disposed at the heating site locations can be directly viewed for controlling operation of the induction heating coils. The control and power supply circuitry for the high frequency excitation electric current supplied to the respective induction heating coil, may be enclosed within the housing below the insulating surface or at some remote location. The insulating surface preferably is from the class of materials comprising plastics, tile, certain glasses, stoneware, ceramics, Pyrex, pyro-ceramics, marble, slate, natural stone, wood, specially treated wood and the like. The cooking site locations and infrared heat transparent areas may be formed from special materials such as a pyro-ceramic secured within appropriate openings, and the remainder of the smooth top insulating material may be formed from a much cheaper plastic material having the requisite characteristics of good ap-

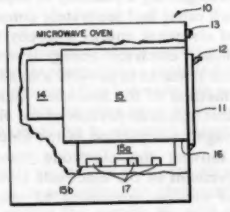
pearance. Otherwise, the entire smooth-top insulating surface must have the capability of withstanding relatively high temperatures of the order of 450° F. The housing may be formed in the manner of a standard countertop which could be then custom used as a table (with legs supplied separately) or as a countertop surface range combination or as a pass through (kitchen-dining room) range surface combination, etc., or may be formed in the manner of a conventional range all of which have continuous, smooth-top surfaces to facilitate cleaning. If desired one of the induction heating units and/or induction coil alone and its overlying insulating surface can be made to be removable to allow for remote location cooking and/or warming. In addition, the unit could be built to have a special electrical jack into which a separate remote and portable induction coil and overlying insulating surface unit can be plugged to provide remote cooking and warming. In this case plugging in the remote unit automatically disconnects the built in counter induction coil. Providing a number of wall plugs allows plugging in the remote unit(s) in different locations.

3,740,514

MODE-SHIFTING SYSTEM FOR MICROWAVE OVENS

Harold C. Anderson, New Brighton, Minn., assignor to Litter Systems, Inc., Minneapolis, Minn.

Filed July 1, 1970, Ser. No. 51,616
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 **1 Claim**



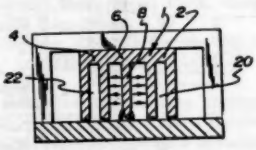
A mode-shifting system for microwave ovens comprising spaced dielectric blocks located within the cavity of a microWave oven to ensure uniform distribution of electromagnetic wave energy throughout the foodstuffs placed within such cavity.

3,740,515

MICROWAVE HEATING APPARATUS

Allan L. Vankoughnett, Ottawa, Ontario, Canada, assignor to Canadian Patents and Development Limited, Ottawa, Ontario, Canada

Filed July 7, 1971, Ser. No. 160,416
Claims priority, application Canada, Nov. 27, 1970, 099304
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 **1 Claim**



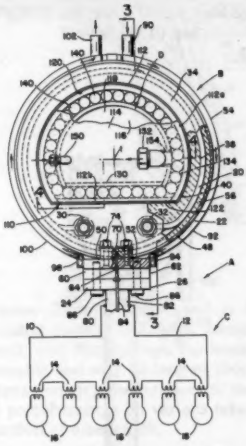
A microwave heating apparatus for line heating a dielectric sheet material comprises a trough waveguide having a central ridge extending along the trough, and a metal member spaced from the ridge so that the sheet may be passed in the longitudinal direction of the ridge and between the ridge and the metal member. The dielectric sheet material may be a paper carrying an ink mark to be dried, and the metal member may be a metal drum having the paper extending around it. The trough waveguide extends circumferentially around a portion of the drum and closely follows the drum contour.

3,740,516

RADIO FREQUENCY TRANSFORMER FOR INDUCTION HEATING INSTALLATION

William J. Kec, Chippewa Lake, Ohio, assignor to Park-Ohio Industries, Inc., Cleveland, Ohio

Filed Jan. 10, 1972, Ser. No. 216,682
Int. Cl. H05b *5/06*
U.S. Cl. 219—10.75 **13 Claims**



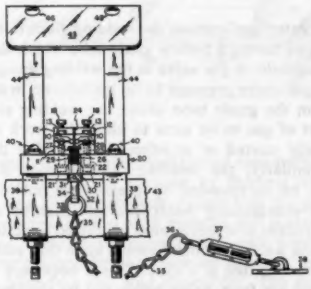
In a radio frequency transformer for an induction heating device including a primary winding and a secondary winding defining a central chamber there is provided a core structure including a closed, non-magnetic housing having an outer wall generally matching the inner surface of the chamber, a plurality of high permeability elements secured within the housing and adjacent the outer walls thereof, and means for circulating a coolant through the housing and in heat transfer relationship with the elements.

3,740,517

ELECTRICAL WIRE CUTTING APPARATUS

Cornelius Lauer, Stow, Ohio, assignor to The General Tire & Rubber Company, Akron, Ohio

Filed Feb. 17, 1972, Ser. No. 227,064
Int. Cl. B23p *1/00*
U.S. Cl. 219—68 **3 Claims**



A wire cutting apparatus is provided having a pair of spaced apart, highly electrically conductive electrodes such as tungsten or platinum, and an insulated bias means for urging the wire to be cut against the electrodes. A power source applies a

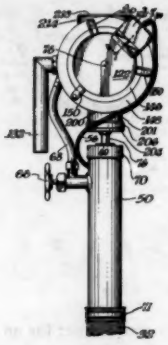
low voltage, high power electrical signal between the electrodes preferably of between 1.5 and 5 volts and of at least 25 amperes. On insertion of a stranded wire or the like between the bias means and electrodes, a high current flows through portions of the wire between the electrodes to generate localized heat to melt and cut the wire while welding the ends of the stranded wire.

3,740,518

APPARATUS FOR ARC WELDING

Ernest H. Berghof, Orlando, Fla., assignor to Anna Welding Corporation, Orlando, Fla.

Filed Mar. 9, 1972, Ser. No. 233,071
Int. Cl. B23k 9/16
U.S. Cl. 219—72 **11 Claims**



There is described herein an apparatus which facilitates electric arc welding either underwater or under adverse atmospheric conditions. This apparatus includes a housing chamber having three primary apertures therein. The first and second apertures are disposed oppositely of each other. A piston-like, hollow insert is adapted to be coaxially positioned in the first aperture. A transparent viewing member is disposed in the first aperture and held in place by the insert. A contact gasket is removably secured to the periphery of the second aperture to provide a seal between the work piece to be welded and the housing. A flexible sealing gasket is secured over the third aperture and is adapted to sealingly receive the welding gun. Finally, there is a means for introducing a shielding gas into the chamber to maintain it substantially free of the fluids from the surrounding environment during the welding operation.

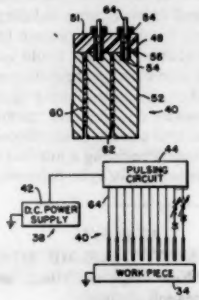
In underwater applications the welding electrode is held by a welding gun having a hollow guide tube which supports the welding electrode. A gas valve in the welding gun permits the entry of a gas under pressure to be introduced in the annular space within the guide tube about the welding electrode to permit a jet of gas to be used to clear the work area either when initially started or at other times during the welding process. Similarly, the welding current control switch is adapted to be surrounded by pressurized shielding gas to maintain it substantially water-free and thereby avert short circuits. A rocker arm mechanism is utilized to actuate the gas valve and the welding control switch such that either but not both may be actuated at a time. This is necessary to prevent the electrical arc from being blown out by the sharp blast of cleaning gas. The gun itself is formed of a solid member having various channels formed therein to provide for the necessary gas conduits and electrical wiring. Suitable end caps are placed over either end of the gun member to provide a water seal and to strengthen the gun.

3,740,519

ELECTRODE FOR ELECTRO-EROSION MACHINING ELECTRODE

Thomas J. O'Connor, 100 Morgan Road, Ann Arbor, Mich.

Continuation of Ser. No. 33,216, April 30, 1970, abandoned.
This application Mar. 27, 1972, Ser. No. 238,126
Int. Cl. B23p 1/08, 1/04
U.S. Cl. 219—69 E **2 Claims**



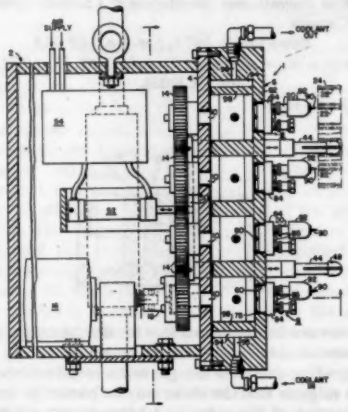
Apparatus for and a method of electro erosion machining with increased stock removal rate with a fine finish is disclosed. The electro erosion machining apparatus disclosed includes an electrode having a plurality of separate portions insulated from each other and separately connected to a single source of pulsed electrical energy whereby the current from the source of pulsed electrical energy is divided among the separate electrode portions to provide a small current for each electrode. The method of the invention includes varying the current passed through each portion of the electrode, limiting the current through each portion of the electrode to a single direction and moving the electrode transversely of the direction of movement of the electrode toward a workpiece during electrical erosion machining to provide rapid total form machining.

3,740,520

APPARATUS FOR MAKING CIRCULAR WELDS

Eli M. Daughenbaugh, Prospect Park, and Thomas R. Platt, Narberth, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 3, 1972, Ser. No. 223,256
Int. Cl. B23k 9/02
U.S. Cl. 219—60 A **10 Claims**



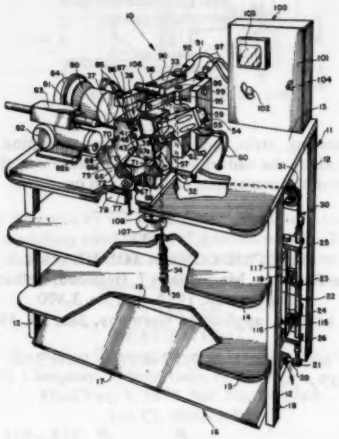
An apparatus for making circular welds as for example welding tubes to tube sheets in which the electrical conductors and gas lines do not rotate with the welding head.

3,740,521

SOLDERING APPARATUS FOR SAW CUTTING TEETH

Martin Blythe Bullard, 7111 Pomelo Drive, Canoga Park, Calif.

Filed Aug. 16, 1971, Ser. No. 171,886
Int. Cl. B23k *1/04*
U.S. Cl. 219—85 21 Claims



A mounting block has a retaining opening for receiving and holding a metal carrier supporting a carbide bit with necessary layers of silver solder and flux between the metal carrier and carbide bit. A pair of swing arms have jaws that engage opposing sides of the carbide bit to properly orient it on the metal carrier.

A pair of movable electrodes is selectively urged by a force applying means to bear against an electrical conductor and cause it to bear against the carbide bit with a predetermined and controlled amount of force.

With the metal carrier and carbide bit thus oriented and the metal carrier securely clamped against the mounting block, an electrical power supply circuit can be energized to solder the metal carrier and carbide bit together. Current flows through one electrode into the electrical conductor and outwardly through the other electrode without passing through either the carbide bit or the metal carrier. The duration is relatively short so that heat generated by the current passing through the joint does not penetrate very deeply into the metal carrier. A joint is thus produced with a controlled joint thickness and controlled distribution of the silver solder, a portion of which constitutes a fillet under and around the carbide bit to assist in stabilizing the joint.

3,740,522

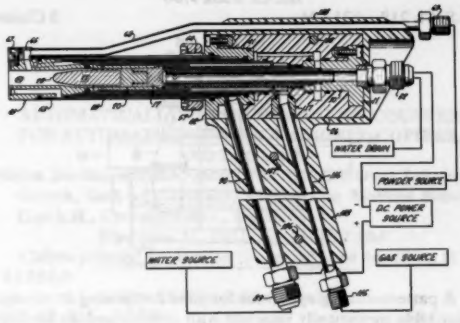
PLASMA TORCH, AND ELECTRODE MEANS THEREFOR

Erich Muehlberger, Costa Mesa, Calif., assignor to Geotel, Inc., Amityville, Long Island, N.Y.

Filed Apr. 12, 1971, Ser. No. 133,126
Int. Cl. B23k *9/00*
U.S. Cl. 219—121 P 18 Claims

The torch comprises an insulating housing in which are mounted a metallic front housing and a metallic rear housing. Five coaxial metal tubes are provided in radially-spaced relationship to define four annuli and a central passage. The two inner tubes extend from the rear housing to the cathode holder to deliver electricity and cooling water thereto. The two outer tubes extend from the front housing to the anode for conduction of electricity and cooling water thereto. The intermediate tube extends from the insulating housing to the anode and cooperates with a fluted gas-injector and spacer sleeve to pass arc gas to the arc chamber. An external tube conducts spray powder to the anode.

The anode has alternating water-in and water-out longitudinal passages which efficiently cool it and permit a very small diameter in relation to power capabilities. The anode is removable and may be straight-flow, angular-flow, and/or supersonic. The outermost tube is removably secured in a clamping and current-conducting portion of the front housing.



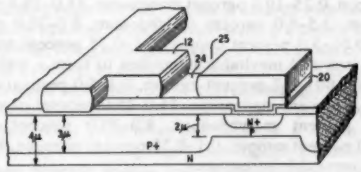
The cooling water flows in series, and in four directions, through the central passage and inner annulus, through the outer two annuli, and also through the housings. All of the tubes are removable and may be long or short, thus adapting the torch for spray coating the interiors of various lengths of pipe. External protuberances on various tubes maintain concentricity regardless of tube length.

3,740,523

ENCODING OF READ ONLY MEMORY BY LASER VAPORIZATION

Melvin Irwin Cohen, Berkeley Heights, N.J., and Alan William Fulton, Naperville, Ill., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 30, 1971, Ser. No. 214,343
Int. Cl. B23k *9/00*
U.S. Cl. 219—121 LM 4 Claims



A beam-lead silicon integrated circuit read-only memory is made in a conventional manner by forming an array of transistors on a silicon substrate, except that the gold portion of one conductive lead to each memory cell is severed, as by gold etching. Conductive connection to each memory cell is, however, maintained by the platinum-titanium intermediate layer that underlays the gold conductor. The array is permanently encoded by selectively vaporizing, with a laser beam, the exposed platinum layer of certain memory cells. This technique permits laser encoding of a beam-lead silicon integrated circuit with a sufficiently low power beam as not to endanger the silicon substrate.

3,740,524

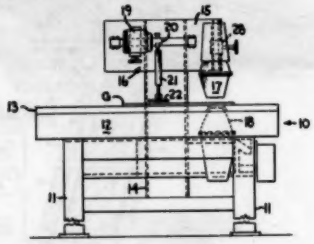
METHOD FOR CUTTING CURVED PATTERNS IN GLASS SHEETS DISPOSED ON A FLUID AIR SUPPORT

John R. Dahlberg, Jeannette, Pa., and Terrence A. Dear, Newark, Del., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 829,075, May 29, 1969, abandoned. This application Mar. 26, 1971, Ser. No. 128,385

Int. Cl. B23k 9/00

U.S. Cl. 219—121 LM 8 Claims



A pattern-cutting apparatus for glass comprising an air-support table periodically supplied with compressed air for supporting the glass above the table, a source of thermal energy disposed above and below the glass sheet for inducing a fracture in the glass, and a motor and turning mechanism for turning the glass between the energy sources so as to describe a pattern in the glass sheet when it rotates between the sources and producing a pattern-cut piece of glass when the glass is severed along the fracture line.

3,740,525

PROCESS OF MAKING FULLY AUSTENITIC WELDED JOINTS WHICH ARE INSUSCEPTIBLE TO HOT CRACKING

Anton Baumel, Lank/Niederrhein, Germany, assignor to Bohler & Co., AG, Kalsfenberg, Austria

Filed Nov. 30, 1970, Ser. No. 93,878

Claims priority, application Germany, Nov. 29, 1969, P 19 60 025.0

Int. Cl. B23k 9/00

U.S. Cl. 219—137 3 Claims

A fully austenitic base material composed of 0.001–0.2 percent carbon, 0.1–5.0 percent silicon, 0.25–10.0 percent manganese, 15.0–25.0 percent chromium, 3.5–6.0 percent molybdenum, 8.0–30.0 percent nickel, 0.01–3.0 percent copper, 0.1–0.35 percent nitrogen, balance iron and inevitable impurities is joined with the aid of an electrode comprising a filler material composed of 0.001–0.2 percent carbon, 0.1–5.0 percent silicon, 0.25–10.0 percent manganese, 15.0–25.0 percent chromium, 3.5–6.0 percent molybdenum, 8.0–30.0 percent nickel, 0.01–3.0 percent copper, 0.1–0.35 percent nitrogen, balance iron and inevitable impurities to form a weld composed of 0.001–0.2 percent carbon, 0.1–5.0 percent silicon, 0.25–10.0 percent manganese, 15.0–25.0 percent chromium, 3.5–6.0 percent molybdenum, 8.0–30.0 percent nickel, 0.01–3.0 percent copper, 0.1–0.35 percent nitrogen, balance iron and inevitable impurities.

3,740,526

METHODS OF WELDING TOGETHER SHEETS TO FORM WALLS, TANKS OR THE LIKE

Robert G. Jackson, Hornchurch, and Edward Armstrong, Darlington, both of England, assignors to Conch International Methane Limited, Nassau, The Bahamas

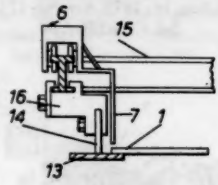
Filed Mar. 8, 1971, Ser. No. 121,975

Claims priority, application Great Britain, Mar. 19, 1970, 13,248/70

Int. Cl. B23k 9/12

U.S. Cl. 219—137 6 Claims

In welding together metal sheets to form walls, tanks or the like, a connecting strip is used which supports a rail spaced from its edges and which serves as a track for mounting a welding machine. The edges of two adjacent sheets to be welded together are placed so that each overlaps one edge of



the connecting strip, and the welding machine is then traversed along the rail while welding at least one sheet edge to the part of the connecting strip which it overlaps.

3,740,527

ELECTRIC CONVECTOR HEATER

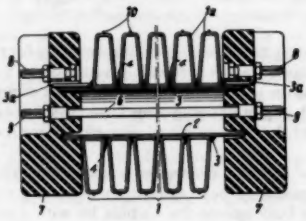
Franciscus Roffelsen, Mauritslaan 7, Helmond, Netherlands

Filed Jan. 16, 1970, Ser. No. 3,390

Claims priority, application Germany, Jan. 20, 1969, P 19 02 575.3

Int. Cl. H05b 3/02; F24h 3/00; H01c 3/00

U.S. Cl. 219—365 6 Claims



An electric convector space heater comprises a convector wire helix which is wound helically around a tubular support with the loops of the helix extending radially from the support and a heat source in the form of an electric resistance wire which is also wound around the tubular support and has means for connecting its ends to a source of electric current. In one form of the invention the convector wire helix is electrically insulated from the support and itself forms the electric resistance wire and in another form of the invention the electric resistance wire is in the form of an element in which it is surrounded with an insulating coating and a metal sheath. The element is wound helically around the support between the turns of the helical winding of the convector wire and the sheath is entirely encased in solder or brazing metal by which the element and the convector wire helix are fixed to the support.

3,740,528

BIMETALLIC TIMING MECHANISM FOR AUTOMATIC BREAD TOASTER

Kurt Wohlfart, Offenbach/Main, and Henz Marburger, Frankfurt am Main, Germany, assignors to Rowenta Werke GmbH, Offenbach am Main, Germany

Filed June 28, 1972, Ser. No. 267,101

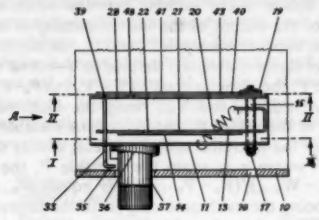
Claims priority, application Germany, June 28, 1971, P 21 31 977.7

Int. Cl. H05b 1/02

U.S. Cl. 219—510 7 Claims

A timing mechanism for an automatic bread toaster is provided which has a regulating knob and a bimetallic element that is mounted on an adjustable calibrating spindle. When the toaster activated by the depression of the bread slide electrical current heats the bimetallic element, the element is thereby

deflected to a point where it engages a groove in a control slide and it also switches off its own heating current. The control slide is moved by the bimetallic element as it cools until it releases a latching pawl from engagement with the bread slide, thereby allowing the bread slide to return to its raised position.



3,740,529
HEATING UNIT

Richard B. Falk, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

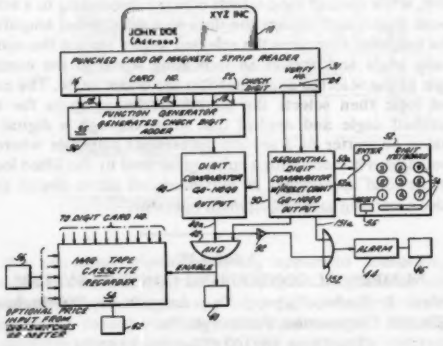
Filed Nov. 1, 1971, Ser. No. 194,740
Int. Cl. H05b *3/58*
U.S. Cl. 219—535 **1 Claim**

An in situ heating unit is provided by embedding an electric heating element in a flexible laminar structure impregnated with partially polymerized high-temperature-resistant resin. The object to be heated is easily and conformably wrapped in the laminate and electric current passed through the heating element to cure the resin, providing a low cost, adherent, void-free, efficient heating unit which is resistant to elevated temperatures and physical abuse.

3,740,530
APPARATUS AND METHOD FOR VERIFICATION OF A CREDIT CARD

Arthur Hoffer, Dix Hills, and James Hall, East Northport, both of N.Y., assignors to Transvac Electronics Inc., Plainview, N.Y.

Filed Dec. 7, 1970, Ser. No. 95,469
Int. Cl. G06k *7/00*
U.S. Cl. 235—61.7 B **13 Claims**

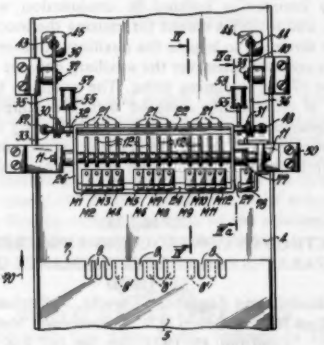


Apparatus and method for verifying a credit card: The card has three groups of machine readable information. The first and second groups of information are functionally related and a comparator compares them for validity. A second comparator sequentially compares them for validity. A second comparator sequentially compares the third group with information provided by the card holder. If both comparisons are favorable, recordation of purchase information is enabled. If either comparison is unfavorable, an alarm system is activated.

3,740,531
AUTOMATICALLY PRESETTABLE COPY COUNTER FOR AUTOMATIC PRINTING MACHINES, COPIERS, AND THE LIKE

Heinz Joachin Schinke, Unterkirnach, and Werner Lehmann, Gutach, both of Germany, assignors to Mathias Bauerle G.m.b.H., Georgen/Schev., Germany

Filed June 11, 1971, Ser. No. 152,084
Claims priority, application Germany, June 16, 1970, G 70 22 582.0
Int. Cl. B41j *5/02*; **G06r** *17/00*
U.S. Cl. 235—61.7 R **19 Claims**

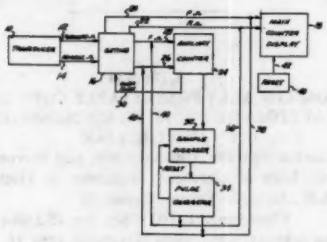


A plurality of control levers are pivotally mounted, on a common shaft, extending transversely of the path of movement of an original for deflection by the leading edge thereof, Each lever has a respective electric switch associated therewith for actuation responsive to deflection of the lever. The leading edge of each original is formed with one or more forwardly opening recesses, representing a binary code, with the recesses being arranged in groups, each group corresponding, for example, to units, ten, hundreds, etc. The recesses effect delayed deflection of the correspondingly located levers and corresponding delayed actuation of the associated electric switches. After each lever not opposite a recess has been deflected by the leading edge of an original, a transverse rod is engaged beneath hooked end of the deflected levers and a frame mounting both the deflected levers and the non-deflected levers is pivoted to move all of the levers out of the path of movement of the original. Only certain electric switches are actuated in accordance with those levers corresponding to the recesses in the leading edge of the original. The switches may be connected to a value storage, or the switches and the actuating levers therefor may constitute a value storage and be used in a coincidence circuit arrangement with corresponding switches actuated by a mechanical counter which counts the number of copies. When the number of copies reproduced is equal to the number set in the value storage, the reproduction is interrupted and all of the levers are returned to their initial positions. The forwardly opening recesses may be U-shaped, V-shaped, or rectangular.

3,740,532
DIGITAL COUNTER AVERAGING SYSTEM

Robert E. Esch, Dayton, Ohio, assignor to Kureha Kagalsu Kogyo Kabushiki Kaisha, Chuo-Ku, Tokyo, Japan

Filed May 25, 1971, Ser. No. 146,712
Int. Cl. H03k 21/02
U.S. Cl. 235—92 EV 7 Claims

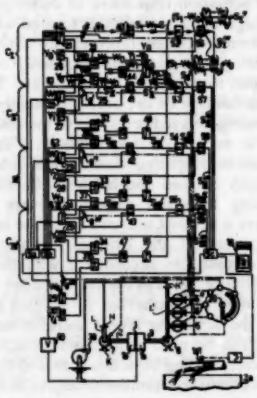


An arrangement for averaging the count received from a bidirectional pulse source such as a measuring machine position transducer is disclosed in which a relatively small capacity auxiliary counter is utilized in conjunction with a main counter, and includes means for causing the incoming pulses in either direction to bypass the auxiliary counter and pass to the main counter whenever the auxiliary counter is full in the direction of the incoming pulse. The count in the auxiliary counter is periodically sampled with the samples taken at regular intervals and an update signal reflecting the direction of the average count being added to the main counter and subtracted from the auxiliary counter at regular intervals.

3,740,533
METHOD OF CONTROLLING A PROCESS AND APPARATUS FOR THE PERFORMANCE OF THE METHOD

Gerrit Hendrik van Zeggelaar, Utrecht, Netherlands, assignor to Ballast-Nedam Groep N.V., Amsterdam, Netherlands

Filed Jan. 19, 1971, Ser. No. 107,716
Claims priority, application Netherlands, Jan. 23, 1970, 7001014
Int. Cl. G01d 18/00
U.S. Cl. 235—151.3 6 Claims

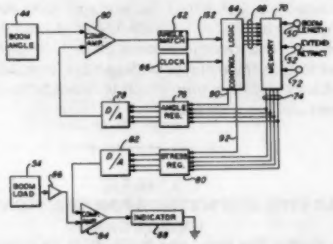


A method and apparatus for controlling a process, which requires a control signal which varies linearly with a process variable, by means of an instrumentality which measures the variable but does not produce the required linear output. The deviation of the instrumentality from the desired linear signal is compensated for by calibrating the instrumentality for a number of values of the variable between which successive pairs thereof the output of the instrumentality is reasonably linear. Thus, between each pair P_n and P_{n-1} of the variable the ideal control signal is uniquely defined as $Y=mx+b$ where x is the variable P, the slope m equals $(Y_n-Y_{n-1})/(P_n-P_{n-1})$ and b equals Y_{n-1}, with Y_n and Y_{n-1} being the ideal values corresponding to the values P_n and P_{n-1} of the variable; whereas the output of the instrumentality is at least closely defined as $S=m^1xa_{xb}{}^1$ where x is again the variable P, the slope m^1 equals $(W_n-W_{n-1})/(P_n-P_{n-1})$ and b^1 equals W_{n-1} with W_n and W_{n-1} being the calibrated outputs of the instrumentality corresponding to the values P_n and P_{n-1} of the variable. With these conditions prevailing for that range of the variable between each pair, the instrumentality output is corrected to equal $(S-W_{n-1})[(Y_n-Y_{n-1})/(W_n-W_{n-1})]+Y_{n-1}$ and is used to control the process with high degree of accuracy.

3,740,534
WARNING SYSTEM FOR LOAD HANDLING EQUIPMENT

Charles F. Kezer, and Soo Chul Chung, both of Mineola, N.Y., assignors to Litton Systems, Inc., Beverly Hills, Calif.

Filed May 25, 1971, Ser. No. 146,682
Int. Cl. G06g 7/22; G08b 21/00
U.S. Cl. 235—151.3 12 Claims



A warning system for load handling equipment is shown capable of warning an operator of the load handling equipment, such as a crane hoist, that his lifted load is about to cause a failure due to the crushing of the boom or tipping of the crane. A memory stores information peculiar to the crane hoist, while control logic selects data corresponding to a set of boom angles and applies the data to a differential amplifier. The amplifier compares the selected angles against the actual boom angle and applies an indicating signal to the control logic as the selected angle matches the boom angle. The control logic then selects the stored maximum stress for the matched angle and applies this stress through a digital to analog converter to a second differential amplifier where a comparison is made with a stress generated by the lifted load. As the load approaches its maximum, an alarm circuit provides a warning to the equipment operator.

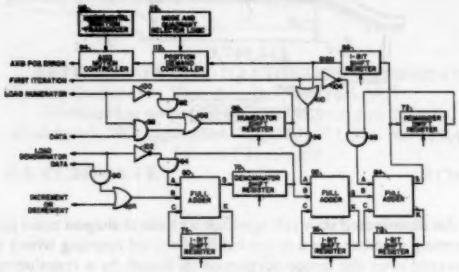
3,740,535
NUMERICAL CONTOURING CONTROL SYSTEM

Andras I. Szabo, Export, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 16, 1971, Ser. No. 172,074
Int. Cl. G06f 15/46
U.S. Cl. 235—151.11 6 Claims

This disclosure relates to a numerical contouring control system for controlling the displacements of a machine tool

along two or more axes in response to intelligence indicia on a control media such as a tape. The time required to complete one block of information is arranged in digital form as an arithmetical numerator. The displacements in rectangular coordinate directions are respectively arranged in digital form as arithmetical denominators. Successively, each denominator is subtracted from the numerator. When a change in sign in the remainder is detected, a position signal is sent to command an incremental displacement ΔL along a rectangular coordinate direction. Upon detecting a change in sign in the remainder, the digital information in the numerator is added to the remainder at the advent of the next subtraction. The



subtraction process is iterative and continues until the position demand is equated to the end displacement indicator by the intelligence on the control media. A cooperating sero system continues to actuate associated drive mechanisms until the position demand and the actual position produce zero error signal.

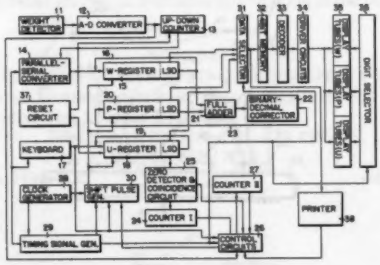
When the rectangular coordinates are part of a circular quadrant, the denominator for each coordinate is appropriately adjusted as subtraction proceeds, the denominator for one of said coordinates being incrementally increased, while the denominator for the other coordinate is decrementally decreased.

3,740,536

ELECTRONIC DIGITAL WEIGHING APPARATUS

Yasuyoshi Takahashi, Mishima; Nobuhiko Oshiro, Shizuoka-ken; Tsutomu Msysui, Mishima; Yoshiaki Tomokubo, Numazu, and Norihisa Osaka, Fuji, all of Japan, assignors to Tokyo Electric Co., Ltd., Tokyo, Japan

Filed Aug. 25, 1971, Ser. No. 174,898
Int. Cl. G06g *7/48*; G06f *15/20*, *7/39*
U.S. Cl. 235—151.33 **15 Claims**



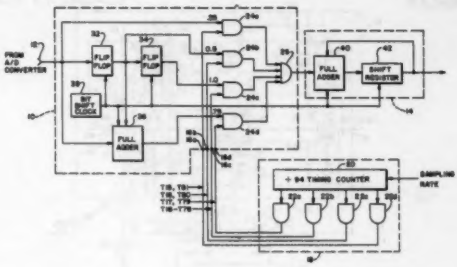
An electronic digital weighing apparatus comprising a weight detecting section for detecting the weight of an object as an analog quantity and an analog-digital converter for converting the analog quantity to a digital quantity. The digital quantity is counted by an UP-DOWN counter the contents of which are drawn out in serial form. A unit price per unit weight of an object weighed is read into a unit price register. The serial output representing the contents of the UP-DOWN counter and the contents of a price register are added by the same number of times as the numerals stored in the unit price register. The results of the addition are introduced into the price register, and the serial output representing the contents of the UP-DOWN counter, and the contents of the unit price register and price register are indicated in digits.

3,740,537

MODIFIED INTEGRATE AND DUMP FILTER

George R. Giles, Williamsville, N.Y., and John A. Lockitt, Holliston, Mass., assignors to GTE Sylvania Incorporated, New York, N.Y.

Filed Dec. 1, 1971, Ser. No. 203,545
Int. Cl. G06f *1/02*
U.S. Cl. 235—152 **4 Claims**



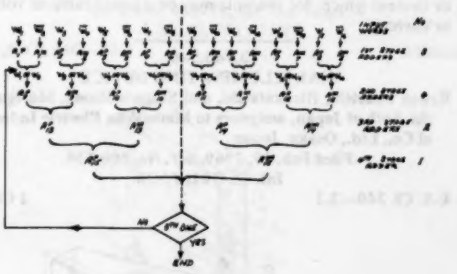
A modified integrate and dump (I&D) filter employs an input terminal coupled to a selector gate through a plurality of data paths, each path including bit delay elements of different values. The output connection of the selector gate is coupled to a digital integrate and dump filter. Each of the data paths is selectively energized to vary the bit delay of selected data samples to thereby weight the value of the selected samples before supplying the samples to the I&D filter.

3,740,538

DIGITAL SORTER AND RANKER

Julie A. Hemphill, Los Altos, Calif., assignor to The United States of America as represented by the Secretary of the Air Force

Filed July 28, 1971, Ser. No. 166,898
Int. Cl. G06f *7/06*, *7/00*
U.S. Cl. 235—177 **2 Claims**



A digital sorter and ranker in which pairs of binary words are subtracted from each other in adders by feed-in in one word of the pair together with the adjacent word one's complement. A carry output indicates which word is the lowest and this output is fed through coincidence logic circuits to additional series of address and logic circuits in pyramid fashion until a single output is obtained from a final adder. The adder logic circuits, the carry output and the output of the final

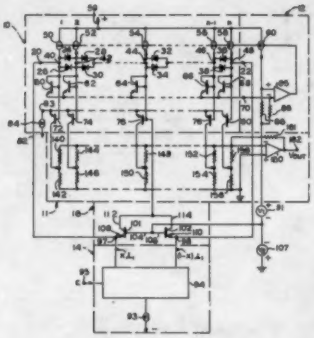
adder are fed through minimum value logic circuits to a series of minimum value flip-flops with the outputs thereof being fed back to the adders and their logic circuits. To record the rank of each word, a series of flip-flop groups with each group corresponding to a binary word is set according to the word's rank, the flip-flops being controlled by gating circuits fed by preceding logic circuits, the final adder, and a binary counter.

3,740,539

PROGRAMMABLE FUNCTION GENERATOR

John W. Pace, Aloha, Oreg., assignor to Tektronix, Inc., Tektronix Industrial Park, Beaverton, Oreg.

Filed Feb. 28, 1972, Ser. No. 229,901
Int. Cl. G06g 7/26
U.S. Cl. 235—197 **14 Claims**



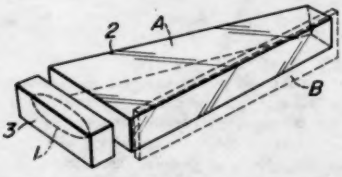
A programmable function generator, which is suitable for construction in integrated circuit form, includes a current ladder which produces an output voltage or current which is a programmable function of an input voltage or current at n evenly spaced values of the input voltage or current corresponding to n spaced output points along the current ladder. For values of the input signal between any two of the n values, the output is a linear interpolation between the output values at the corresponding output points along the current ladder. The programming of each point is independent of all other points, and the output at any point is established by the ratio of a resistor pair. Accurately controlled current sources or current drivers control the flow of currents to each of the n points and the flow of current from terminals of said current ladder including compensated current drivers, one of which differentially controls current flow from end terminals of the current ladder in response to a variable input control voltage or current which, for example may be a linear ramp of voltage or current.

3,740,540

DIAL ILLUMINATING DEVICE

Kenzo Takeichi, Hirakata-shi, and Shigeru Hama, Moriguchi-shi, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 19, 1969, Ser. No. 800,639
Int. Cl. G01t 1/28
U.S. Cl. 240—2.1 **1 Claim**



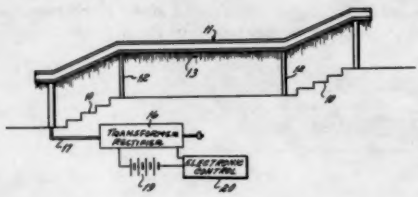
A dial illuminating device for use in a dial device for a radio receiver or the like, which is capable of illuminating the dial plate uniformly and clearly.

3,740,541

LIGHTED STAIR RAIL

James C. Conradt, Hamilton, Ohio, assignor to L&J Specialty Corp., Hamilton, Ohio

Filed Dec. 23, 1971, Ser. No. 211,207
Int. Cl. F21v 33/00
U.S. Cl. 240—2 W **8 Claims**



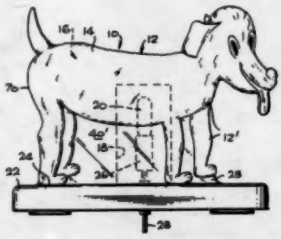
An illuminated stair rail in which a channel-shaped main rail forming member has a downwardly directed opening which is covered over the major portion of its length by a translucent plate. The channel member has a plurality of lamp bulbs connected to a low voltage supply by means of a transformer which is in turn connected to conventional alternating current line voltage, for example, 115 volts, the power supply having selectively connectable storage batteries and a control system for connecting the storage batteries to the bulbs upon failure of the household supply.

3,740,542

DECORATIVE LAMP

Norman M. Brody, Los Angeles, Calif., assignor to Norman Industries, Inc., Santa Fe Springs, Calif.

Filed June 5, 1972, Ser. No. 259,582
Int. Cl. F21p 1/00
U.S. Cl. 240—10 F **25 Claims**



Decorative lamp comprising three-dimensional plastic colored article, e.g., a reproduction of a cartoon character and the like, in the form of a clear transparent, preferably cast polyester, resin body having a colored fiber glass paper inlay embedded in the resin, such inlay preferably being a silk screened multicolored configuration, the resin body having an external shape corresponding to the external shape of the colored inlay, forming a three-dimensional plastic duplicate of the colored inlay having substantially the corresponding coloration and outlines of the colored fiber glass paper inlay, and creating a three-dimensional effect to the eye of an ob-

server, such resin body being provided with a cavity in the rear portion thereof and behind the embedded fiber glass paper inlay, and an artificial lighting means such as an electric lamp positioned within the cavity, whereby light from the lighting means is transmitted through the fiber glass paper inlay and through the resultant colored resin body to the front surface thereof, to brightly and uniformly light the entire colored resin body. According to another embodiment, a translucent or opaque resin body is attached to the rear surface of the transparent resin body and substantially surrounding the cavity therein, reducing the amount of light passing through the rear of the lamp asembly and also providing a more finished appearance of the article.

3,740,543

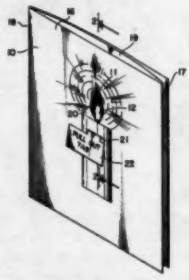
BATTERY POWERED ILLUMINATED ORNAMENT

Charles Franc, 1501 First Avenue, New York, N.Y.

Continuation-in-part of Ser. No. 52,963, July 7, 1970, abandoned. This application Aug. 10, 1971, Ser. No. 170,425

Int. Cl. F21v *33/00*

U.S. Cl. 240—6.4 R 8 Claims



A portable, illuminated ornament for illuminating a greeting card, gift package or the like, consisting of a flat, substantially rectangular bettery having a horizontally disposed, rectangular-shaped positive terminal affixed to one side thereof. A negative battery terminal, consisting of the battery casing and a rectangular member affixed to the same side of the battery as the positive terminal, is disposed parallel to the positive terminal. Either the positive or negative terminal may be provided with an aperture for receiving the base of a flame-shaped lamp. The ornament may be mounted in a greeting card which has an aperture in one surface thereof behind which the flame-shaped lamp is disposed, and an elongated slot which receives a flat tab disposed between the lamp base and the battery terminal to control illumination of the lamp.

3,740,544

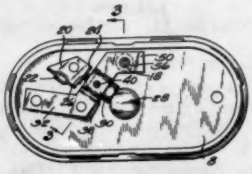
WARNING LIGHT WITH SPRING SOCKET FOR A BULB

Charles J. Newman, Madison, Ind., assignor to The Grote Manufacturing Company, Madison, Ind.

Filed May 3, 1971, Ser. No. 139,419

Int. Cl. B60q *1/32*

U.S. Cl. 240—8.22 4 Claims



A light primarily intended for trucks and trailers has a generally tubular socket designed to receive lamp bulb bases having radially projecting pins registrable with radial holes in the socket into which the pins are entered by rotation of the bulb in the sockets. The socket comprises separable parts, one of which is a spring which may be lifted manually to release the bulb without requiring reverse rotation thereof. The free end of the spring socket wall may be anchored in the assembly of the socket to prevent accidental bulb release.

3,740,545

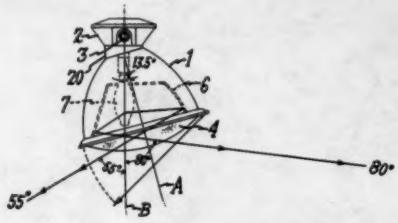
LUMINAIRE

John S. Franklin, Hendersonville, and Samuel L. Baldwin, East Flat Rock, both of N.C., assignors to General Electric Company

Filed Sept. 17, 1971, Ser. No. 181,517

Int. Cl. F21s *1/00*

U.S. Cl. 240—25 8 Claims



Luminaire optical system for providing asymmetric semi-directional light distribution along a one-way highway comprises a concave reflector having a bottom opening inclined toward the direction of travel. The reflector has opposite beam reflecting areas formed of a plurality of vertically extending horizontally adjacent stepped reflecting sections, each section formed of vertically adjacent reflecting surfaces which are parabolic in vertical section with foci at the light center and with axes oriented at different vertical angles for spreading the outgoing light vertically. The reflecting surfaces are formed of horizontally adjacent reflecting surface portions oriented in different horizontal directions for spreading the outgoing light laterally.

3,740,546

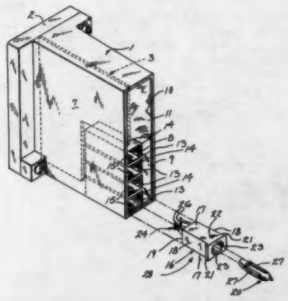
PILOT LIGHT ASSEMBLY FOR CIRCUIT CARD MOUNTING DEVICE

Gerd C. Boysen, Milwaukee, and Lawrence F. Freitag, Bayside, both of Wis., assignors to Allen Bradley Company, Milwaukee, Wis.

Filed Oct. 4, 1971, Ser. No. 186,114

Int. Cl. F21v *21/08*

U.S. Cl. 240—52.1 6 Claims



A pilot light assembly for a circuit card enclosure having a cover into which the card is inserted for retention therein, which cover has an inner tier of light receptacles adjacent one

another in a front corner. The circuit card has several pairs of terminal pads disposed on one end, which pads are electrically connected to key circuit points on the card. A plurality of pilot light units are insertable into the light receptacles through apertures in a front wall of the cover, and a pair of fingers extend from each light unit to slidably engage one pair of the terminal pads on the circuit card to complete an electrical circuit between the light unit and a circuit card monitor point.

3,740,547

GLOBE SUPPORT

James Contratto, Livermore, and Frederic L. Green, El Cerrito, both of Calif., assignors to U.S. Industries, Inc., New York, N.Y.

Filed Sept. 9, 1971, Ser. No. 178,968
Int. Cl. F21v 17/02
U.S. Cl. 240—144 **11 Claims**

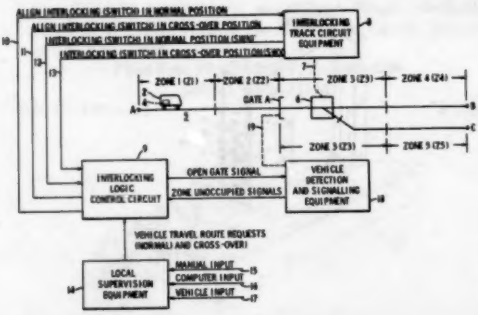
A universal support for globes of varied configurations and sizes on a light fixture. The support includes a hub having a plurality of circumferentially spaced radially projecting fingers secured to a threaded sleeve projecting upwardly from the light socket of the fixture and traversed by the electrical power cord thereof. The fingers are pivotally secured to the hub so as to be movable between downwardly and upwardly extended positions, and means are provided for selectively retaining the fingers in a plurality of intermediate positions conducive to internal-engaging support with globes of varied configurations and sizes. The fingers may be moved to their upwardly extended positions to permit entry of the socket and support through the globe opening into the interior thereof, whereupon the fingers are released to their selectively retained position for internal supporting engagement with the globe.

3,740,548

CONTROL OF AN INTERLOCKING IN A VEHICLE CONTROL SYSTEM

Robert C. Hoyler, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 25, 1971, Ser. No. 156,908
Int. Cl. B61l 27/00
U.S. Cl. 246—3 **6 Claims**



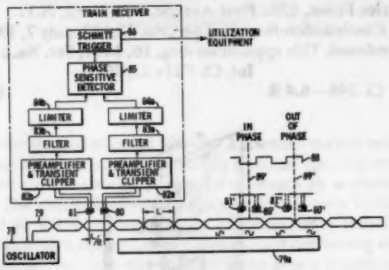
Fail-safe electronic logic elements having unidirectional failure modes are used in the construction of a fail-safe logic circuit which controls the interlocking in a vehicle control system. The logic circuits provide control signals for properly aligning the interlocking such that vehicles which are operational in the system may travel along selected vehicle travel routes. There are also provided a group of status signals which are indicative of whether or not it is safe for a vehicle to enter the interlocking zone.

3,740,549

REMOTE SIGNALING SYSTEM FOR TRAIN CONTROL

George M. Thorne-Booth, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 637,684, May 11, 1967, abandoned. This application Dec. 24, 1969, Ser. No. 887,825
Int. Cl. B61l 25/00
U.S. Cl. 246—122 **4 Claims**



A remote signaling system is described for the monitoring and control of one or more moving trains from a remote wayside location by means of a vehicle carried antenna and signal transmitter coupled with a track-side cable and designed to introduce a movement variable periodic phase shift into the coupled signals from the train back to the wayside located receiver to enable the desired train position monitoring function. The train carried antenna is magnetically coupled to this track-side cable arrangement such that undesired signal changes due to train vehicle rock and sway motion are minimized, and signal transmission difficulties introduced by the physical position variation of the track-side cable wires relative to the track path are minimized. The track-side cable comprises two closely spaced signal transmission lines each having a crossover at predetermined length intervals, with the physical crossover of each transmission line being equally spaced and substantially half-way between the adjacent physical crossovers of the other transmission line.

An alternate embodiment employs a signal signal transmission line or cable having crossovers at predetermined intervals at the track-side. This track-side transmission line is driven by an oscillator. Two train carried antennae, spaced a predetermined longitudinal distance apart, receive a movement variable periodic phase shift signal to enable the desired position monitoring function.

3,740,550

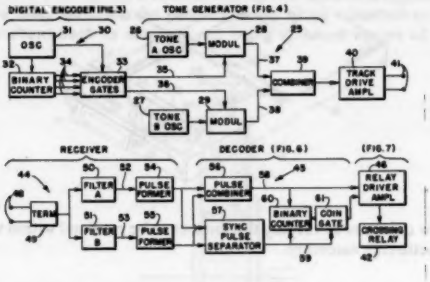
PULSE CODED RAILWAY SIGNAL SYSTEM

Willard L. Geiger, Chagrin Falls, Ohio, assignor to Erico Products, Inc., Cleveland, Ohio

Filed Jan. 11, 1971, Ser. No. 105,509
Int. Cl. B61l 29/32
U.S. Cl. 246—125 **12 Claims**

A railway crossing signalling system using coded digital signals impressed on the tracks for actuation of a crossing relay, the presence of a train at the crossing location causing shunting of the signals and an indication from the relay which operates in a fail-safe configuration. In each signal circuit first and second tone oscillators provide carrier signals which are modulated in a specific digital pattern and applied to the tracks. A tone sensitive receiver separately detects the carrier signals and provides pulse train outputs which are decoded in

a binary counter and coincidence gate circuit for ascertainment that the correct digital code pattern has been received. Signals are developed for energization of an oscillator, the output of the latter being amplified for direct actuation of the



crossing relay. More than one signal circuit can be employed on common tracks for separate or overlapping signal control by the selection of different pairs of operating frequencies, readily accommodated by plug-in filter substitution.

3,740,551

PLURAL BEAM MASS SPECTROMETER

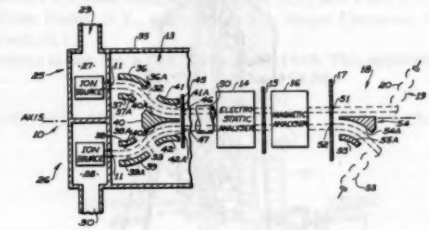
Brian Noel Green, Sale, England, assignor to Associated Electrical Industries Limited, London, England

Filed Sept. 17, 1970, Ser. No. 73,072

Claims priority, application Great Britain, Sept. 18, 1969, 46,162/69

Int. Cl. H01j *39/34*

U.S. Cl. 250—41.9 ME **15 Claims**



A mass spectometer in which plural beams of ions can be generated simultaneously in separate sources. Convergent deflectors bring the beams close together for passage through an analyzer region.

A divergent deflector separates an analyzed beam to provide adequate beam spacing for the positioning of detectors to respectively receive the beams.

3,740,552

METHOD AND APPARATUS FOR MASS SEPARATION EMPLOYING PHOTO ENHANCED SURFACE IONIZATION

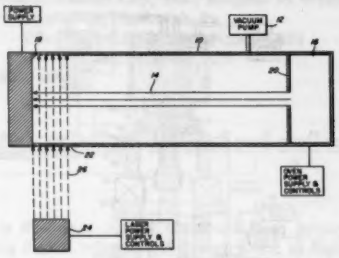
Jerome Pressman, 4 Fessenden Way, Lexington, Mass.

Filed Apr. 29, 1971, Ser. No. 138,640

Int. Cl. H01j *39/34*

U.S. Cl. 250—41.9 SE **20 Claims**

Photo-assisted surface ionization techniques are employed for the separation of isotopes and the purification of materials, the formation of relatively pure and intense ion beams and plasmas and the detection of minor constituents, pollutants and leaks. A species intermingled with other constituents in an atomic or molecular beam or in a gas, for example, is selectively excited by irradiation at a resonance frequency in close proximity to an ionizing surface. The selected species, while still in the excited level, interacts with the surface and is ionized. The specimen is excited by the radiation to a level



such that the energy required to ionize the atom is less than the work function of the solid surface.

3,740,553

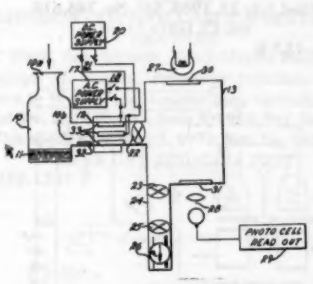
METHOD AND APPARATUS FOR MEASURING SIZE DISTRIBUTION OF PARTICLES USING A TWO-DIMENSIONAL ALTERNATING CURRENT ELECTRIC FIELD

Nathan Rey Whetten, Burnt Hills, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 2, 1972, Ser. No. 222,774

Int. Cl. H01j *39/34*

U.S. Cl. 250—41.9 DS **19 Claims**



The size distribution of particles including particulate matter in a gas sample is determined by generating a two-dimensional alternating current electric field for mass-selective sorting of the particles whereby condensible vapor saturated charged particles in the gas sample which are in a particular range of charge-to-mass ratio, are directed to an expansion chamber. An expansion of the gas in the expansion chamber causes condensation of droplets on the particles, and a condensation nuclei counter may be used for detecting the number of the droplets which corresponds to a like number of the particles in the particular range of charge-to-mass ratio in the gas sample.

3,740,554

MULTI-AMPERE DUOPIGATRON ION SOURCE

Ora B. Morgan, Jr., Oak Ridge, Tenn., assignor to The United States of America as represented by the United States Atomic Energy Commission

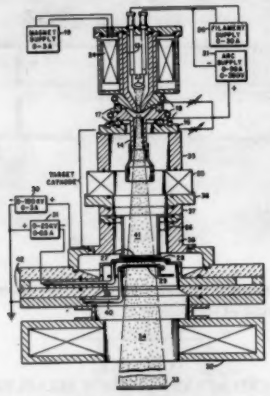
Filed Apr. 13, 1972, Ser. No. 243,676

Int. Cl. H01j *37/08*

U.S. Cl. 250—41.9 SE **6 Claims**

A duoplasmatron ion source is modified to provide a large plasma surface with a uniform density at a target cathode. The target cathode and the acceleration and deceleration electrodes are gridded or multi-apertured and are spaced in close proximity each to the others with the apertures being in align-

ment. With such an arrangement, it is possible to extract multi-ampere bright ion beams at energies of tens of KeV.



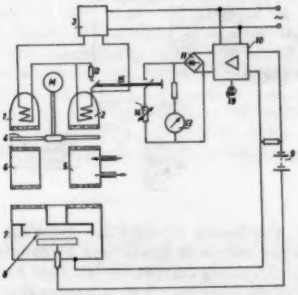
Conversion of the ion beam to a neutral particle beam can be readily accomplished by addition of a gas cell.

3,740,555

TWIN BEAM INFRARED ABSORPTION ANALYZER

Werner Schaefer, Kelkheim, Taunus, Germany, assignor to Hartmann & Braun Aktiengesellschaft, Frankfurt am Main, Germany

Filed July 22, 1968, Ser. No. 746,618
Int. Cl. G01n *21/34*
U.S. Cl. 250—43.5 R 3 Claims



A modulated twin beam selective radiation absorption monitoring analyzer. Beam modulation is converted to modulated electrical quantity fed to an amplifier and thence to a rectifier to give reading, the rectifier having a sensitivity threshold exceeding the amplified zero drift prior to rectification. Sample cell length is chosen such that the amount of absorption therein is in the range of 40 to 60 percent. The absorption by a sample of known composition is simulated by a change in beam intensity.

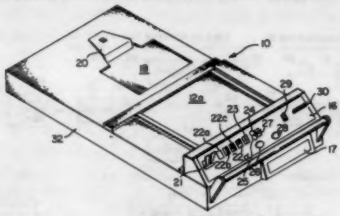
3,740,556

SPOT FILM DEVICE

George W. Otto, Jr., Elmhurst, Ill., assignor to Litton Medical Products, Inc., Des Plaines, Ill.

Filed Nov. 26, 1971, Ser. No. 202,288
Int. Cl. G03b *17/26*
U.S. Cl. 250—66 16 Claims

An improved spot film device which includes a front loading and unloading area and a top loading and unloading area. A cassette carriage assembly, a cassette tray assembly and accompanying electromechanical means are utilized to allow a cassette to be loaded into either the front or the top of the spot film device and ejected from either the top or the front of the spot film device. A plurality of biased rollers is employed to allow cassettes of varying thicknesses to be retained within the cassette tray assembly.

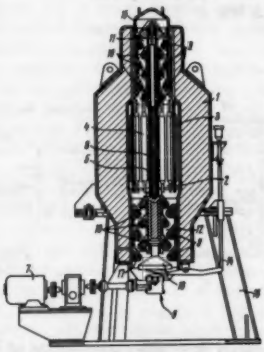


3,740,557

GAMMA-IRRADIATION APPARATUS FOR GRANULAR MATERIALS OF BIOLOGICAL ORIGIN

David Aronovich Kaushansky, Belyaevo-Bogorodskoe Kvartal, 48; Yakov Adolfovich Gurevich, Ulitsa Vavilova, 49; Boris Grigorievich Zhukov, Leningradsky, Prospekt, 75; Rigo Artemievich Srapeniants, Khlebozavodskoi Proezd, 5, and Dmitry Maximovich Kalyanov, Ulitsa Profsojuznaya, 58/32, korpus 3, kv. 52, all of Moscow, U.S.S.R.

Filed May 27, 1970, Ser. No. 40,935
Int. Cl. G21h *5/00*
U.S. Cl. 250—106 R 6 Claims



A gamma-irradiation apparatus for granular materials of biological origin, comprising an irradiator and an irradiation chamber located in a shielding enclosre, in which there is a rotating shaft arranged along the longitudinal axis of the apparatus and passing through the center of the chamber and having shielding elements which together with the annular shielding projections of said enclosure form respective inlet and outlet labyrinths.

The apparatus is intended for use primarily in farming, to irradiate seeds prior to sowing.

3,740,558

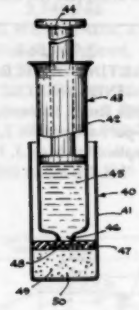
RADIOACTIVE ISOTOPE GENERATOR OF SHORT-LIVED NUCLIDES

Sadatake Kato, Tokyo, and Kunio Kurata, Matsudo, both of Japan, assignors to Dainabot Radioisotope Laboratories, LTD, Tokyo, Japan

Filed Feb. 17, 1971, Ser. No. 116,055
Int. Cl. G21h *5/00*
U.S. Cl. 250—106 T 5 Claims

A radioactive isotope generator for conducting parent-daughter radio-nuclide separations and containing a relatively

small amount of radioactivity, the generator comprising a container or column having a parent nuclide disposed therein, the parent nuclide being separated from the remainder of the column by a filter material. As a specific embodiment, the generator comprises a column having two chambers separated by a filter material, the parent activity being adsorbed on an adsorbent such as alumina and being disposed in one of the



chambers as a suspension. The open end of the column proximate the empty chamber is sealed by a puncturable stopper. By evacuating the empty chamber by means of a syringe inserted through the puncturable stopper, for example, the solution containing the daughter nuclide will pass through the filter and into the empty chamber, from which it is available for use.

3,740,559

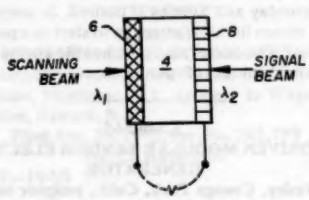
VOICE COMMUNICATION SYSTEM

Joseph C. Scanlon, Elizabeth; Alfred Brauner, Wanaque; Robert Carvalho, Englewood, all of N.J., and Cecil B. Ellis, White Plains, N.Y., assignors to The Singer Company, New York, N.Y.

Division of Ser. No. 820,572, April 30, 1969. This application June 29, 1971, Ser. No. 158,096

Int. Cl. H04b 9/00

U.S. Cl. 250—199 **5 Claims**



A voice communication system is provided which includes a photosensitive element, an amplifier connected to the photosensitive element, a loudspeaker connected to the amplifier, a first light beam producing device adapted to project a first light beam spot on one side of the photosensitive element, a second light beam producing device adapted to project a second light beam spot on the other side of the photosensitive element, and a speaker adapted to modulate the first light beam according to the output of a voice which it senses. The photosensitive element has a cell plate which is sandwiched between first and second radiation transmitting electrodes. The first electrode is a film of metal bonded to the cell plate. A non-ohmic photovoltaic junction is formed between the metal film and the material of the cell plate. The metal film and the cell plate have respective work functions, wherein the metal film work function is greater than the cell plate work function. The speaker is a vibratory conical member which has a portion containing a pinhole, through which the first light beam is projected so that the conical member modulates the light beam.

3,740,560

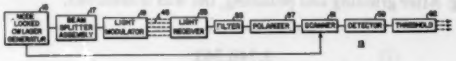
COMMUNICATION MEANS

John L. Wentz, Ellicott City, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 8, 1971, Ser. No. 178,601

Int. Cl. H04b 9/00

U.S. Cl. 250—199 **7 Claims**



There is disclosed optical communication apparatus for transferring digital information at high rates, as high as 10^{10} bits per second. The communication channel is a mode-or phase-locked CW laser which generates optical pulses of very short duration, typically of 10^{-9} seconds, at short intervals. Typically 10^8 pulses are transmitted per second. Each pulse is subdivided into time-spaced sub-pulses by beam splitters and each sub-pulse, in its turn, is incident on one of an array of electro-optic cells. The cells are electrically modulated in accordance with the intelligence to be communicated. For ten cells there are a total of 10^9 sub-pulses per second each pulse carrying a bit of information. In transmission to a receiver the sub-pulses overlap to produce a beam. The receiver includes a line scanner which converts the timed distribution of the sub-pulses into spaced distribution. The beam scans an array of photo-multiplier detectors which derive the intelligence from the beam.

3,740,561

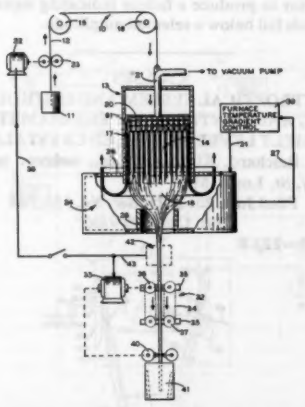
DIMENSION CONTROLLING APPARATUS FOR DRAWING

Horst G. Fleck, San Antonio, Tex.; Martin Rome, Princeton, and Joseph M. Wixted, Princeton Junction, both of N.J., assignors to Weston Instruments Inc., Newark, N.J.

Division of Ser. No. 830,007, June 3, 1969, Pat. No. 3,622,291. This application May 5, 1971, Ser. No. 140,622

Int. Cl. G01j 1/20; G01n 21/30

U.S. Cl. 250—201 **1 Claim**



An illustrative embodiment of the invention is directed to method and apparatus for manufacturing microchannel devices. Typically, the individual glass tubes in a hexagonal bundle are sealed on one end to individual hangers from which they are suspended vertically in a furnace. A vacuum is drawn within the furnace so that the inner surfaces of the tubes, exposed to atmospheric pressure, will not collapse during heating and drawing. At temperature, the bundle is drawn and elongates under the controlled forces applied through a modified Atwood's machine to reduce the bundle cross section by a ratio of about 50 to 1. The elongated bundle is cut

into lengths as it is drawn, and these individual lengths are stacked together within a tube of glass that has a higher melting point than the glass in the drawn lengths.

The channels are once more sealed and the assemblies are subjected to a secondary fusion process prior to slicing into thin discs. The annular glass rings are removed from the discs and the microstructures are placed in a molten wax bath in order to fill the channels with wax before grinding and polishing. After grinding and polishing, the wax is removed.

3,740,562

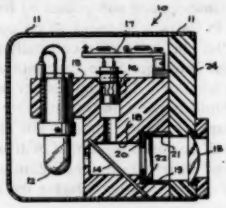
RETRO-REFLECTIVE TYPE DETECTOR HEAD WITH FAIL-SAFE FEATURE

Raymond Baines Fertig, Ronceverte, W. Va., assignor to Appalachian Electronic Instruments, Inc., Ronceverte, W. Va.

Filed Feb. 17, 1972, Ser. No. 227,161

Int. Cl. G01n *21/32*; G06m *7/00*; H01j *5/02*

U.S. Cl. 250—219 DF **12 Claims**



An optical detector head system for projecting light rays toward a surface to be inspected and receiving reflected light from the inspection zone to detect selected conditions, which detector head system includes fail-safe components to produce a failure indicating signal upon failure of the light source in the detector head. The detector head includes a photodetector device, and retro-reflective surface portions disposed relative to the light source and the photodetector to direct a selected quantum of light to the photodetector when the light source is illuminated at normal intensity, and fail-safe circuitry is included responsive to the output signals from the photodetector to produce a failure indicating signal when the output signals fall below a selected amplitude.

3,740,563

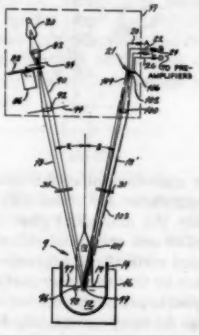
ELECTROPTICAL SYSTEM AND METHOD FOR SENSING AND CONTROLLING THE DIAMETER AND MELT LEVEL OF PULLED CRYSTALS

Thomas E. Reichard, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed June 25, 1971, Ser. No. 156,760

Int. Cl. B01d *9/00*

U.S. Cl. 250—222 R **20 Claims**



An electroptical system for controlling the diameter of crystals pulled from a melt wherein separate process control loops simultaneously provide: (1) closed loop melt tracking for the system optics, (2) direct crystal diameter closed loop control, and (3) normalizing brightness control for a novel photodetector and associated novel optical geometry of the system. This photodetector is uniquely constructed to simultaneously provide the above three functions and is further especially adapted for use as an integral portion of various feedback loops which comprise the electroptical system.

3,740,564

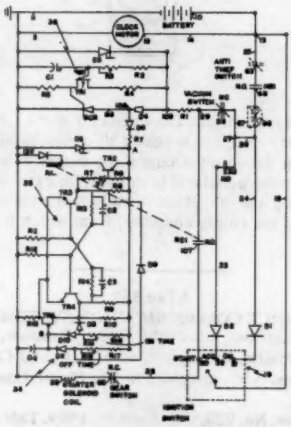
AUTOMATIC STARTING DEVICE FOR AUTOMOTIVE ENGINES AND THE LIKE

Gim Wong, 1849 Gibbs Road, Estevan, Saskatchewan, Canada

Continuation-in-part of Ser. No. 2,250, Jan. 12, 1970, abandoned. This application May 3, 1971, Ser. No. 139,800

Int. Cl. H02p *9/04*

U.S. Cl. 290—38 **11 Claims**



A 24-hour time clock has a plurality of setting pins which enable the automatic starting device to be programmed to operate at any interval desired and can eliminate certain days such as Saturday and Sunday if desired. In conjunction with the clock, means limit the attempts to start to a predetermined time interval. The device also switches the engine off after any predetermined amount of running time.

3,740,565

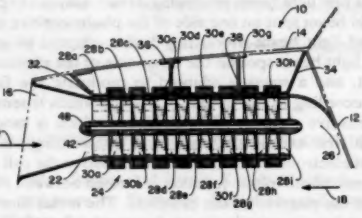
AIR DRIVEN MODULAR TANDEM ELECTRICAL GENERATOR

Neil G. Wesley, Canoga Park, Calif., assignor to Beatrice N. Adams, Canoga Park, Calif.

Filed Apr. 26, 1971, Ser. No. 118,942

Int. Cl. F03d *9/00*

U.S. Cl. 290—55 **2 Claims**



Herein described is an air driven generator for providing electrical energy for charging storage batteries. A plurality of rotors including a round rim, a hub and connecting vanes are alternately interdisposed upon a fixed shaft between a plurali-

ty of corresponding hollow stators. A segmented permanent magnet is mounted around the periphery of the rim of each rotor and creates a moving magnetic field. A corresponding stationary armature is positioned on stators adjacent to a corresponding rotor and suspended around and over the corresponding rotor.

3,740,566

LINING WEAR INDICATORS

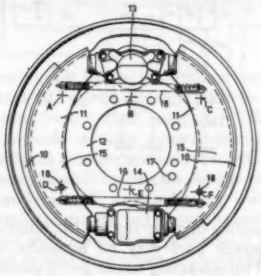
Charles Newstead, Walsall, England, assignor to Girling Limited, Birmingham, England

Filed June 23, 1971, Ser. No. 155,700

Claims priority, application Great Britain, June 26, 1970, 31,004/70; Sept. 25, 1970, 45,697/70; Jan. 16, 1971, 2,210/71

Int. Cl. H01h *3/16*

U.S. Cl. 307—10 R **15 Claims**



A brake lining wear indicator comprises a preferably normally closed switch. The switch can be operated by feelers in a disc brake or the switch can be incorporated in a tie. The normally closed switches are connected in series to a relay preferably having a delayed action.

3,740,567

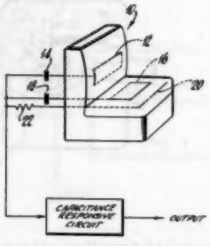
HIGH-DISCRIMINATION ANTENNA ARRAY FOR CAPACITANCE-RESPONSIVE CIRCUITS

Carl E. Atkins, Montclair, N.J., assignor to Wagner Electric Corporation, Newark, N.J.

Filed Apr. 20, 1972, Ser. No. 245,799

Int. Cl. H02g *3/00*

U.S. Cl. 307—10 SB **10 Claims**



A multi-element antenna array for use with capacitance-responsive circuits to enable discrimination between human occupants and animals or packages resting on an automobile seat.

3,740,568

PUSHBUTTON LOCK

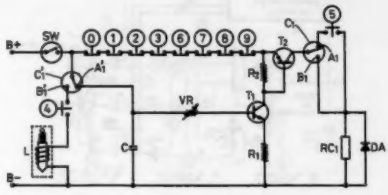
Sadatoshi Ikeda, Itakomachi, Japan, assignor to Niles Parts Co. Ltd., Tokyo, Japan

Filed Aug. 31, 1971, Ser. No. 176,528

Claims priority, application Japan, Oct. 29, 1970, 45/95659

Int. Cl. H02g *3/00*

U.S. Cl. 307—10 AT **2 Claims**



This invention relates to a pushbutton lock which unlocks only when the right combination of numbers is pushed in the proper order within a short period. Said lock is provided with two transistors, one of them actuating relays to maintain contacts for an unlocking solenoid while the other controls the time constant of the circuit. If a wrong button is pushed down after one or more right buttons, the procedure should be repeated anew.

3,740,569

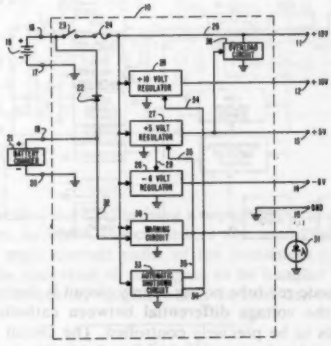
DIRECT-CURRENT POWER SUPPLY SYSTEM

Hernando J. Carcia, San Francisco, Calif., assignor to Integrated Systems Technology, Inc., Garland, Tex.

Filed Aug. 26, 1971, Ser. No. 175,305

Int. Cl. H02j *7/00*

U.S. Cl. 307—11 **10 Claims**

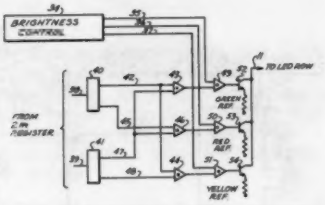


A plurality of voltage regulator circuits are connected to a battery for producing regulated positive and negative output voltages of different values. A warning circuit is provided for causing a light emitting diode to blink when the battery voltage falls below a first value. An automatic shutdown circuit is provided for disabling the regulator circuits when the battery voltage falls below a second and lower value. An overload circuit is provided for rapidly blowing a protective fuse when the output voltage of one of the regulator circuits exceeds a desired value.

3,740,570
DRIVING CIRCUITS FOR LIGHT EMITTING DIODES

George R. Kaelin, Woodland Hills, and James A. Pellegrino, Thousand Oaks, both of Calif., assignors to Litton Systems, Inc., Beverly Hills, Calif.

Filed Sept. 27, 1971, Ser. No. 184,076
Int. Cl. H05b 33/00
U.S. Cl. 307—40 17 Claims

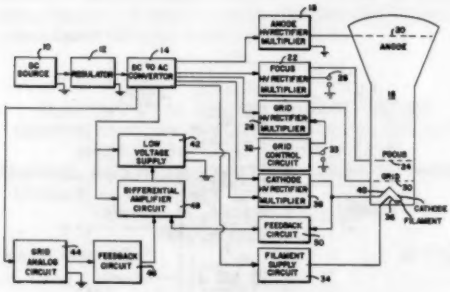


LEDs are arranged in a matrix and driven by a pair of registers. A column register sequentially enables the columns of LEDs and a row register selectively operates the LEDs of each column in accordance with a predetermined binary code. A color control and a brightness control circuit may be included in connection with the row register to selectively control driving currents to the LEDs to control color hue, and to selectively control the duration of "on" time to control apparent brightness.

3,740,571
HIGH VOLTAGE DUAL ISOLATED OUTPUT TRACKING POWER SUPPLY

George Gilman Richards, Jr., Middletown, and Alton Edgar Cherry, East Petersburg, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Apr. 18, 1972, Ser. No. 245,075
Int. Cl. H02j 1/12
U.S. Cl. 307—55 14 Claims

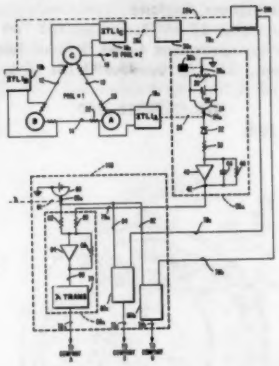


A cathode ray tube power supply circuit is disclosed which permits the voltage differential between cathode and grid electrodes to be precisely controlled. The circuit includes a floating grid voltage supply, to which blanking and control signals may be applied. A grid analogue circuit, which is identical to the grid voltage supply circuit in all respects, is included to duplicate the behavior of the grid voltage supply circuit. The grid analogue circuit is coupled throug a feedback network to a differential amplifier circuit, which also receives a feedback signal from a cathode voltage supply circuit. The output of the differential amplifier circuit controls a low voltage supply which in turn supplies a component voltage which controls the cathode voltage output. This arrangement causes the cathode voltage supply to vary in the same manner as the grid voltage supply, and accordingly maintains a precise differential between the voltages applied to the cathode and grid.

3,740,572
CONTROL OF POWER SYSTEM FOR OPTIMUM ECONOMY

Nathan Cohn, Jenkintown, Pa., assignor to Leeds & Northrup Company, Philadelphia, Pa.

Filed July 3, 1972, Ser. No. 268,234
Int. Cl. H02j 3/00
U.S. Cl. 307—57 7 Claims

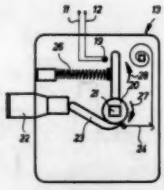


Economic loading of generators in the interconnected companies of a power pool may be normally carried out by producing and broadcasting to the participating companies a common λ signal of value sufficient to provide through control the desired total generation. Such control is modified by biasing the common λ signal to a particular company whose net tie-line interchange has exceeded a predetermined limit. The modification is such that the net interchange is not allowed to exceed the limit. Similar modification may be made when it is desired to prevent a particular tie from exceeding a limit.

3,740,573
CIRCUIT ARRANGEMENT WITH DOOR LOCK SWITCH

Christian Kellermeyer, Valtinstr. 6, D-8858 Neuburg, Germany

Filed Sept. 10, 1971, Ser. No. 179,426
Claims priority, application Germany, Sept. 15, 1970, P 20 45 527.0
Int. Cl. H01h 35/00
U.S. Cl. 307—116 3 Claims



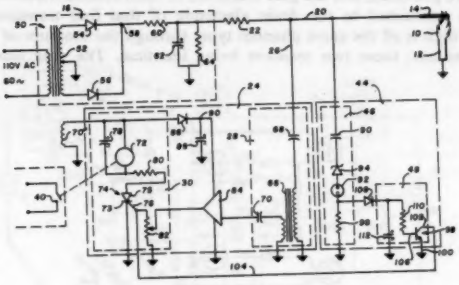
A door lock switch installation in which the door lock switch is connected, via the door hinge, to an impulse relay connected in series with the load, for example a lamp for illumination of the room closed by the door. When the door lock is actuated in a predetermined manner, the switch is momentarily closed to deliver a pulse to the impulse relay which then makes or breaks the load circuit.

3,740,574

IONIC FLAME MONITOR

Jonathan Todd Taylor, Simsbury, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 30, 1971, Ser. No. 214,129
Int. Cl. G08b *21/00*
U.S. Cl. 307—117 7 Claims



A protection circuit for an ionic flame monitor to insure that high voltage AC signals appearing across the flame electrodes and arising from sources other than a flame will not be effective to provide a false output indication of flame presence. The flame monitor is sensitive to AC signals above a certain frequency or above a certain voltage to indicate flame presence. Non-flame AC signals having voltages above or below the certain frequency, but above the certain voltage are prevented from indicating flame presence if their voltage is above a second certain level which is above that of most flame signal voltages.

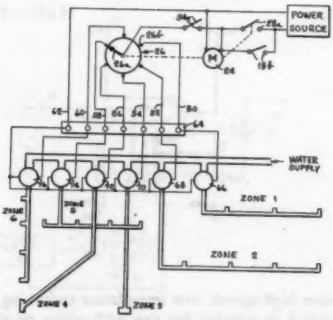
A voltage level detection circuit clamps the monitor output circuitry to a "no-flame" condition whenever the AC signal voltage is above the second certain level.

3,740,575

IRRIGATION CONTROL SYSTEM TIMING DEVICE FOR CONTROLLING WATERING CYCLE OF A PLURALITY OF WATERING ZONES

Michael D. Bizzoco, White Plains, N.Y., assignor to Tork Time Controls Inc., Mount Vernon, N.Y.

Filed June 29, 1971, Ser. No. 157,867
Int. Cl. H01h *43/16*
U.S. Cl. 307—141.4 4 Claims



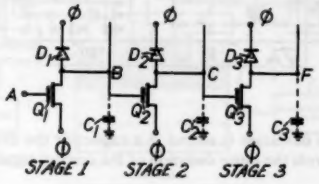
An irrigation control system which provides a watering cycle for a number of individual watering zones under the control of a timing device, and according to which the time interval assigned to the individual watering zones may be programmed, that is to say, the on and off times for fluid flow in each of the zones may be independently and flexibly varied over the widest possible range.

3,740,576

DYNAMIC LOGIC INTERCONNECTION

Tegze Haraszti, Heilbornn, Germany, assignor to Licentia Patent-Verwaltungs GmbH, Frankfurt am Main, Germany

Filed Aug. 4, 1971, Ser. No. 168,966
Claims priority, application Germany, Aug. 4, 1970, P 20 38 633.8; Aug. 4, 1970, P 70 29 281.8
Int. Cl. H03k *19/08*
U.S. Cl. 307—205 9 Claims



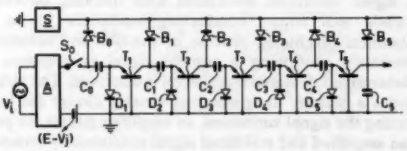
A dynamic logic interconnection comprises a plurality of individual logic circuits connected in series, the individual logic circuits including a diode element in series with the controlled current path of an active circuit element, to which individual circuits single phase clock pulses are applied at the same time.

3,740,577

CAPACITIVE STORE SHIFT REGISTER

Frederik Leonard Johan Sangster, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 2, 1970, Ser. No. 7,524
Claims priority, application Netherlands, Feb. 4, 1969, 6901778
Int. Cl. H03k *17/60*; G11c *11/24*, *19/00*
U.S. Cl. 307—221 D 3 Claims



A capacitive store comprising a sequence of capacitors and transistors, in which the capacitors are connected in series with the main current paths of the transistors in order to reduce the distortion of the signal to be handled and to increase the frequency range in which the store can be used.

3,740,578

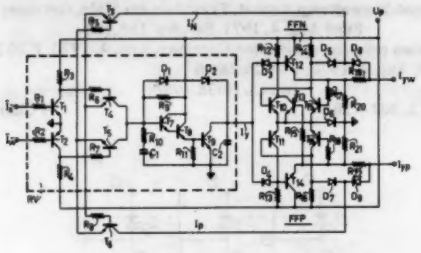
CIRCUIT ARRANGEMENT FOR DIGITAL SAMPLED-DATA THREE-POINT CONTROL SYSTEM

Nico Nissen, Hamburg, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed May 3, 1971, Ser. No. 139,511
Int. Cl. H03k *5/20*
U.S. Cl. 307—232 3 Claims

In digital sampled-date three-point control in which the desired and actually measured values are represented by pulse durations, the duration of the control signal is also influenced in accordance with the difference between the desired value and the actual value. In addition, a special circuit arrangement

for this purpose is described which may readily be manufactured in integrated-circuit form and in which the actually measured value deviation is stored in a capacitor the discharge of which controls the pulse duration of the control signal.



3,740,579

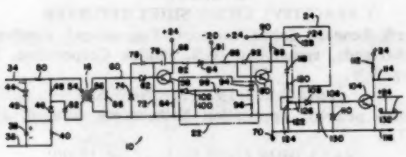
ZENER COUPLED AMPLIFIER CIRCUIT WITH FEEDBACK

Robert W. Drushel, Farmington, Mich., assignor to EX-Cell-O Corporation, Detroit, Mich.

Division of Ser. No. 583,875, Oct. 3, 1966, Pat. No. 3,591,851. This application July 6, 1971, Ser. No. 160,041

Int. Cl. H03k *5/20*

U.S. Cl. 307—235 **4 Claims**



A highly sensitive and completely stable circuit for and method of detecting low amplitude, short duration direct current signal variations associated with sparking between an electrode tool and a conducting workpiece in an electrochemical machining process or the like and substantially immediately producing a control signal in response to a predetermined detected signal level is disclosed. The structure includes a polarity discriminating sensing circuit for initially detecting the signal variations, an amplifier circuit for providing an amplified and stabilized signal substantially immediately on sensing a signal variation of the proper polarity and output circuit for providing an output signal in response to a selected portion of the amplified and stabilized signal, including means for selecting the level of the selected signal portion operable to provide the output signal, means for cutting off the amplified and stabilized signal when the selected level is below a predetermined minimum and means responsive to a number of amplified and stabilized signal, which have a level below the selected level received in a predetermined time for providing an output signal.

3,740,580

THRESHOLD VALUE SWITCH

Johann Spies, Pfaffenhofen/Ilm, Germany, assignor to Messerschmitt-Bolkow-Blohm Gesellschaft Mit Beschrankter Haftung, Munich, Germany

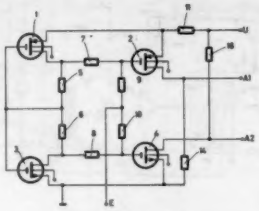
Filed Jan. 26, 1972, Ser. No. 221,007

Claims priority, application Germany, Feb. 13, 1971, P 21 06 957.8

Int. Cl. H03k *17/30, 17/72, 3/284*

U.S. Cl. 307—251 **7 Claims**

The switch, which is designed for input signals of both polarities, provides an output signal when a threshold value, which is equal in magnitude for both polarities, is exceeded, and includes at least four field effect transistors of the excitation type. The transistors include two paired first field effect transistors of respective different channel type, whose gate electrodes are interconnected and connected to the midpoint of a voltage divider, interconnecting the two drain electrodes and comprising two identical resistors. Two paired second field effect transistors, of respectively different channel types, are provided, and the gate electrode of each second transistor is connected to the drain electrode of that first transistor which is of the same channel type, through the medium of a resistor, these two resistors being identical. The gate electrodes of the two second transistors are interconnected by a second voltage divider consisting of two identical resistors, and an input signal terminal of the switch is connected to the midpoint of the second voltage divider. The source electrodes of the transistors of the same channel type are connected to each other and to respective supply voltage terminals. The output signals of the switch are provided by terminals connected to the drain electrodes of the two second transistors. The setting of the threshold value can be varied by varying the supply voltage, as by using a series resistance with the supply voltage source. The switch may be modified by providing feedback arrangements.



3,740,581

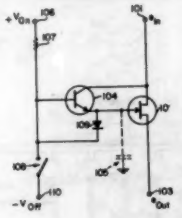
PRECISION SWITCHING CIRCUIT FOR ANALOG SIGNALS

Harold J. Pfiffner, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Mar. 8, 1972, Ser. No. 233,083

Int. Cl. H03k *17/60*

U.S. Cl. 307—251 **5 Claims**



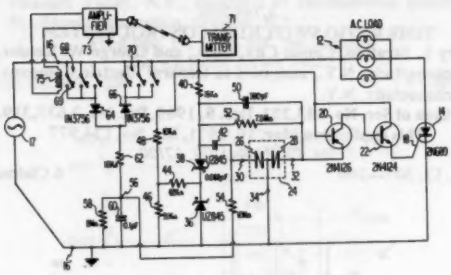
A precision high-speed, low impedance switching circuit is disclosed which is suitable for use with video or other high frequency analog signals. A J-FET is used as the switching element but is controlled by means of a novel circuit which minimizes channel impedance modulation effects. The gate of the J-FET is connected to the output of a control transistor, the input of the control transistor being connected to the input signal, thereby allowing the effective parasitic input capacity at the gate of the J-FET switch to be charged and discharged in accordance with the fluctuations of the input signal.

3,740,582

POWER CONTROL SYSTEM EMPLOYING PIEZO-FERROELECTRIC DEVICES

Joseph Henry McCusker, and Stuart Stanley Perlman, both of Princeton, N.J., assignors to RCA Corporation, New York, N.Y.

Filed June 28, 1971, Ser. No. 157,214
Int. Cl. H03k 17/66, 17/72; H01v 7/00
U.S. Cl. 307—252 N 24 Claims



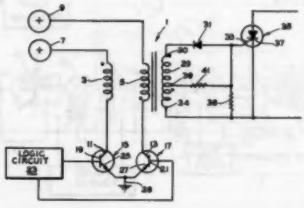
An AC switch device, as for example, a silicon controlled rectifier or triac, is operably connected with an AC load and a source of alternating potential to regulate the amount of electrical power delivered to the load. Signals are applied between a first and a common terminal of a three terminal piezo-ferroelectric device to generate output signals between a second and the common terminal. The second and common terminals are connected in a circuit coupled to the AC switch device. The AC switch device is turned on or keyed into conduction when a voltage developed in the circuit reaches a predetermined level. The point in time or phase relative to the alternating potential when the predetermined voltage level occurs is controlled by adjusting the gain of the piezo-ferroelectric device.

3,740,583

SILICON CONTROLLED RECTIFIER GATE DRIVE WITH BACK BIAS PROVISIONS

Albert W. Compoly, Belmar, and Robert F. Kautz, Spring Lake, both of N.J., assignors to The Bendix Corporation, Teterboro, N.J.

Filed May 25, 1971, Ser. No. 146,761
Int. Cl. H03k 17/72, 17/30, 1/10
U.S. Cl. 307—252 H 11 Claims



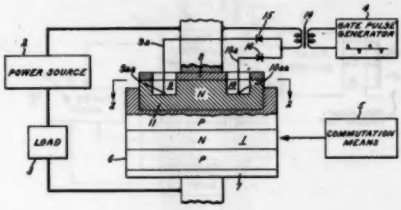
A gating circuit for a silicon controlled rectifier for alternately providing a voltage drop across an impedance connected between the gate and the cathode of the SCR with the gate voltage more positive than the cathode voltage to permit the SCR to conduct and a voltage drop across the impedance with the cathode voltage more positive than the gate voltage to prevent the SCR from conducting.

3,740,584

HIGH ARRANGEMENT FREQUENCY SCR GATING

James E. McIntyre, Crum Lynne; Dante E. Piccone, Philadelphia, and Istvan Somos, Lansdowne, all of Pa., assignors to General Electric Company, Philadelphia, Pa.

Filed June 8, 1971, Ser. No. 150,969
Int. Cl. H01l 11/10, 13/00
U.S. Cl. 307—252 G 2 Claims



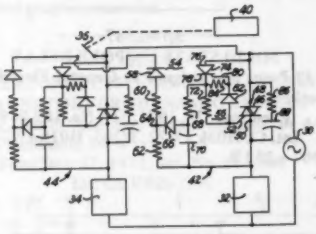
A semiconductor controlled rectifier being particularly suited for high power, high frequency applications is disclosed. The rectifier includes at least two gates which are spaced from each other. One gate is triggered with positive signals to initiate current conduction through the rectifier for one cycle of operation and the other gate is triggered with negative pulses to initiate the immediately succeeding cycle of operation.

3,740,585

POWER CONTROL SYSTEM

David J. Squiers, Attleboro Falls, Mass., assignor to Texas Instrument Incorporated, Dallas, Tex.

Filed Sept. 13, 1971, Ser. No. 180,039
Int. Cl. H03k 17/66; H03 17/72; H03k 17/28
U.S. Cl. 307—252 B 11 Claims



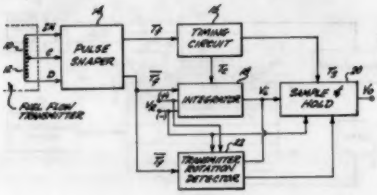
Control of the power being selectively applied to a plurality of similar or dissimilar loads connected in parallel relationship is effected. Switching networks are provided for selectively controlling the application of power to each of the loads. Eachof the switching networks includes a selectively energizable a.c. power switch for coupling the load to an a.c. power source, the a.c. power switch having a control terminal for controlling its conduction. A first trigger means is coupled to the control terminal of the a.c. power switch for supplying energizing signals thereto for rendering the a.c. power switch conductive only during a.c. half cycles of a first predetermined polarity, while maintain the control terminal electrically isolated from the a.c. power source during a.c. half cyclds of a second opposite predetermined polarity. A second trigger means is coupled to the control terminal for supplying energizing signals thereto in orderto render the a.c. power switch conductive during a.c. half cycles of a second opposite predetermined polarity only responsive to conduction of the a.c. powerswitch during a.c. half cycles of the first predetermined polarity.

3,740,586

PULSE WIDTH - DC CONVERTER COMPENSATING FOR PULSE REPETITION RATE CHANGES

Robert B. Banks, Bellevue, and Roger E. Baker, Redmond, both of Wash., assignors to Electro Development Corporation, Lynnwood, Wash.

Filed Dec. 13, 1971, Ser. No. 207,298
Int. Cl. G06g 7/12; H03k 5/00
U.S. Cl. 307—229 7 Claims



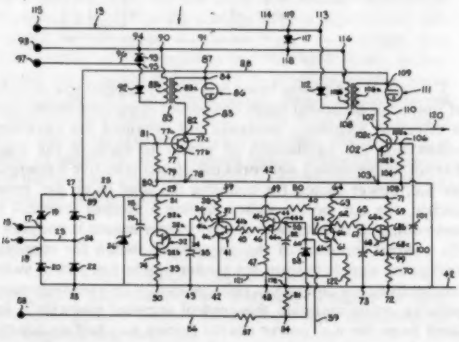
A signal conditioner particularly useful for providing an output DC signal from the drum and impeller signals of a motorless fuel flow transmitter includes a pulse shaper providing a series of output pulses whose width is proportional to the time difference between the drum and impeller signals and whose repetition rate is variable in response to the frequency thereof. At the leading edge of each output pulse, a reference voltage is connected to the input of an integrator which thereafter produces a ramp waveform at its output. The operation of the integrator is stopped at the trailing edge of each output pulse and the signal stored on the integrator output is sampled and held in a storage capacitor shortly thereafter. The stored voltage is then applied through an output stage as a continuous DC output signal proportional to the average pulse width of the output pulses from the pulse shaper. To avoid erroneous indications, a detector clamps the output voltage of the integrator at the negative reference voltage when the rotational speed of the fuel flow transmitter, and therefore the repetition rate of the output pulses from the pulse shaper, falls below a predetermined level.

3,740,587

SOLID STATE UNIPOLE RELAY

Art Lee, El Paso, Ill., assignor to General Electric Company, New York, N.Y.

Filed Sept. 20, 1971, Ser. No. 182,059
Int. Cl. H03k 17/72, 3/295; H01h 47/32
U.S. Cl. 307—252 B 9 Claims



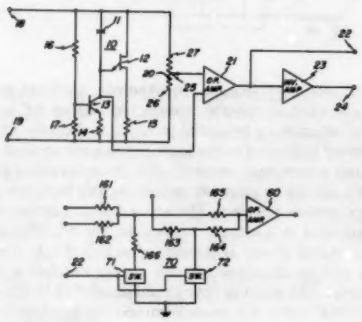
A solid state unipole relay, preferably for use in a modular system for providing solid state power control, comprising two discrete elements employable in different combinations to form a multipole relay with convertible contact functions and including a circuit which supplies two discrete output terminals with a train of pulses to enable gating of a Triac or Triacs associated with that particular output terminal, and wherein the operation of the circuit is such that during normal operation a train of pulses is applied to one output terminal which is connected, in turn, to an associated gate circuit of one or more Triacs but when a control signal is applied to an appropriate point within the circuit the first train of pulses is inhibited and a second train of pulses, fed to a second output terminal, is actuated to control the associated gate circuit of one or more Triacs that are independent of the first mentioned Triac or Triacs.

3,740,588

TIME RATIO SWITCHING CONTROL SYSTEM

Jerry L. Stratton, Canon City, Colo., and George W. Kessler, Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 883,221, Dec. 8, 1969, Pat. No. 3,637,319.
This application Mar. 16, 1971, Ser. No. 124,977
Int. Cl. H03k 5/00, 17/00
U.S. Cl. 307—260 6 Claims



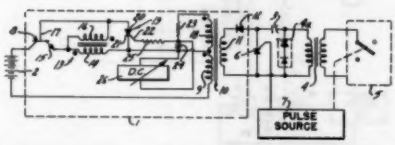
A dual mode control system is disclosed wherein the changeover from one mode to the other is made by the use of time ratio switching. A pulse generator produces a series of pulses whose duty cycle varies from zero to one hundred percent and controls a switching element to accomplish the changeover in accordance with the percent duty cycle.

3,740,589

BLOCKING OSCILLATOR WITH CURRENT MODE TRANSFORMER

Floyd M. Minks, Route 1, Box 41, Kissimme, Fla.

Filed Feb. 16, 1971, Ser. No. 115,652
Int. Cl. H03k 3/30
U.S. Cl. 307—275 15 Claims



A blocking oscillator of free running or triggered input type includes a non-saturable current transformer connected in series with a transistor and a storage inductor to provide a feedback signal with means independent and separate from the transformer initiating and terminating the charging cycle. The storage inductor may be provided with a special current feedback sensing winding paralleled with a resistor and capacitor to fire a control rectifier connected directly across the input circuit of the transistor. The capacitor may be discharged to a

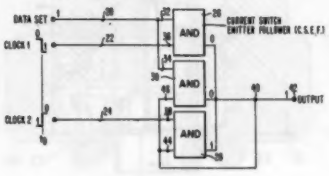
variable reference and provide an adjustable control. The sensing circuit can include a saturable winding in series with a resistor. A series sensing resistor can also be connected in the charging circuit to fire a control rectifier to divert the power from the current transformer and thereby turn off the charging transistor.

3,740,590

LATCH CIRCUIT

Robert L. Hart, Longmont, Colo., and Joel C. Leininger, Pleasant Valley, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 17, 1971, Ser. No. 209,332
Int. Cl. H03k 3/286, 19/22
U.S. Cl. 307—289 6 Claims



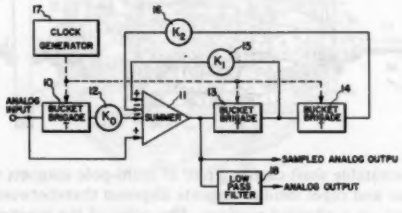
A latch circuit in which false output and skewing of binary output signals on the latch output terminal are eliminated comprising conventional set and hold-clear logic sections. The improvement comprising logic means having an input terminal adapted for connection to the set signals and an output terminal connected to the output latch terminal and being responsive to the set signals for maintaining the state of the latch output terminal during a clock signal transition, and means for simultaneously applying binary clock signals of a first state to the set section and binary clock signals of opposite state to the hold-clear sections so as to allow one or the other to be activated.

3,740,591

BUCKET-BRIGADE TUNED SAMPLED DATA FILTER

Walter J. Butler; Charles M. Puckette, both of Scotia, and Donald A. Smith, Schenectady, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 25, 1972, Ser. No. 229,342
Int. Cl. H03k 1/16
U.S. Cl. 307—295 29 Claims



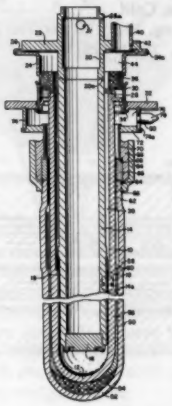
A tuned filter circuit having response characteristics of a tuned LC circuit includes bucket-brigade delay lines and gain factor components connected in feedback circuit relationship around a summing amplifier, and in forward circuit relationship. The resonant frequency of the filter is primarily controlled by the frequency of a digital clock input to the bucket-brigade delay lines. The filter Q and the filter transient response are controlled by the gains established by the gain factor components.

3,740,592

THERMIONIC CONVERTER

Richard E. Engdahl, Danbury, Conn., and John R. Bedell, North Salem, N.Y., assignors to Energy Research Corporation, Bethel, Conn.

Filed Nov. 12, 1970, Ser. No. 88,953
Int. Cl. H01j 45/00
U.S. Cl. 310—4 17 Claims



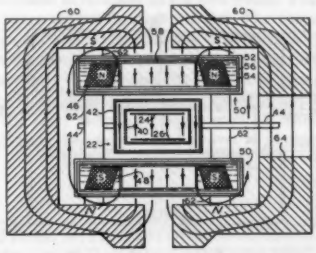
A thermionic converter is provided in which a protective silicon carbide shell is provided around the refractory metal emitter of the converter to shield it from the hot gases of a fossil fuel heat source and prevent oxidation of the emitter. The silicon carbide shell is spaced from the emitter so that stresses are not set up which would cause crackling or breaking of the shell. Heat transfer between the protective shell and the emitter is effected by means of a metal conductor which is liquid at the operating temperature of the converter. To obtain a long-life unit the silicon carbide shell is formed by uniformly depositing silicon carbide on the outer surface of a rotating, heated graphite mandrel.

3,740,593

SUPERCONDUCTIVE MAGNETS USED IN MAGNETOHYDRODYNAMIC DEVICES

Jacob L. Zar, North Andover, Mass., assignor to Avco Corporation, Cincinnatti, Ohio

Filed Dec. 27, 1971, Ser. No. 212,004
Int. Cl. H02n 3/00
U.S. Cl. 310—11 8 Claims



A magnetohydrodynamic generator is shown in which a superconductive magnet is employed to create a magnetic field normal to the direction of flow of a high temperature, conductive gas stream. The magnet comprises opposed coils embraced by U-shaped iron frames which essentially neutralize the forces of attraction and repulsion created in these coils. The coils are mounted in Dewars, the inner casings and outer casings of which are interconnected by a spoke rod system

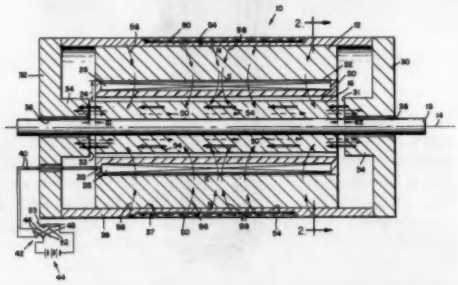
which minimizes heat losses of liquid helium which is circulated through the inner casings to maintain the coils in a super cooled condition.

3,740,594

PERMANENT-ELECTROMAGNETIC RECIPROCATING DEVICE

Gerald F. Casey, Los Angeles, Calif., assignor to Fema Corporation, Pacioma, Calif.

Filed Aug. 30, 1971, Ser. No. 175,924
Int. Cl. H02k *33/12*
U.S. Cl. 310—30 **11 Claims**



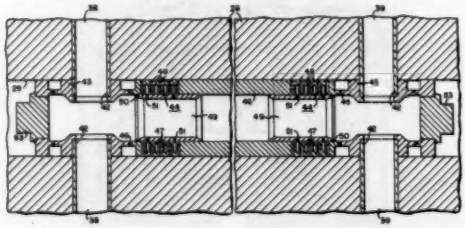
The device, configured to have a small width with respect to its length in the direction of armature movement, comprises a long tubular, radially magnetized permanent magnet coaxially surrounding a long length armature to provide a large circumferential area of the armature. The permanent magnet and the armature are closely spaced along their facing lengths to provide a small annular gap therebetween. The large area compensates for the size of the gap and permits placement of an electro-magnetic coil in the gap.

3,740,595

WATER COOLED ROTOR FOR DYNAMOELECTRIC MACHINES

Paul R. Heller, Murrysville; Sui-Chun Ying, and James E. Luzader, both of Monroeville, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 28, 1971, Ser. No. 166,684
Int. Cl. H02k *9/00*
U.S. Cl. 310—54 **4 Claims**



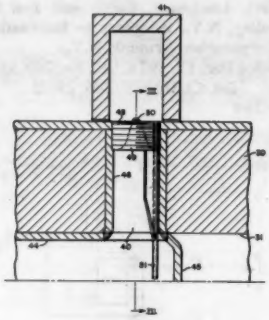
A water cooled rotor for large turbine generators in which the water passages are protected against corrosion by liners of stainless steel or other corrosion resistant material. In order to permit differential thermal expansion, the liner in the axial shaft bore includes a bellows of special design to absorb the expansion of the liner.

3,740,596

LIQUID COOLED ROTOR FOR DYNAMOELECTRIC MACHINES

Little P. Curtis, Murrysville; Sui-Chun Ying, Monroeville, and George F. Dailey, Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 21, 1971, Ser. No. 182,368
Int. Cl. H02k *9/20*
U.S. Cl. 310—54 **6 Claims**



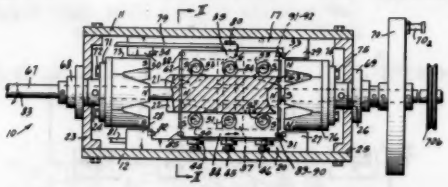
A liquid cooled rotor for dynamoelectric machines in which a coolant liquid such as water circulates through passages in the rotor and is discharged through an axial bore and radial passages in the rotor shaft, and in which flow restricting arrangement are provided in the radial passages for controlling the flow of liquid due to the self-pumping action of the radial passages and for improving the pumping action, the flow restricting arrangement having a curved and convergent orifice which changes the direction of the discharged liquid from radial to a direction approaching the tangential and opposite to the direction of rotation of the rotor.

3,740,597

PRIME MOVER SYSTEM HAVING ROTATING AND RECIPROCATING MULTI-AMPLIFICATION

Dzemal Mulasmajic, 338 Pleasant Hill Boulevard, Palatine, Ill.

Filed Sept. 17, 1971, Ser. No. 181,379
Int. Cl. H02k *7/06*
U.S. Cl. 310—80 **29 Claims**



A rotatable shaft carries a pair of multi-pole magnets which attract and repel similar magnets disposed therebetween and carried on a wheeled carriage. The poles of the magnets are aligned annularly about the axis of rotation of the shaft and annularly positioned so that two magnets are attracting while the other two magnets are repelling. The shaft can be rotated by any expedient arrangement, such as, manual, small electric motor, etc. This arrangement may include a feedback system connected between the reciprocating carriage and the shaft. In one embodiment, the feedback system comprises a fluid circuit including a compressor connected to the carriage, an air tank connected to the compressor and an air-driven motor connected between the air tank and the shaft. In another em-

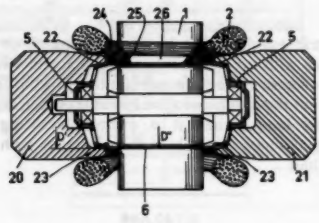
bodiment, a mechanical motion translation device is connected between the carriage and the shaft for converting the reciprocating motion into rotary motion.

3,740,598

ELECTRIC MOTORS OR OTHER ELECTRIC ROTARY MACHINES AND METHOD FOR THE MANUFACTURING THEREOF

Stig Lennart Hallerback, Vastra Frolunda, Sweden, assignor to SKF Industrial Trading and Development Company N.V., Amsterdam, Netherlands

Filed Nov. 1, 1971, Ser. No. 194,374
Claims priority, application Sweden, Nov. 2, 1970, 14729/70
Int. Cl. H02k *5/10*
U.S. Cl. **3 Claims**



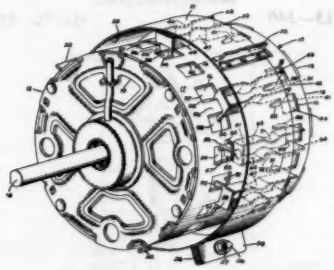
An electric motor or other electric rotary machine comprising bearing support means of cup-like shape mounted to the stator radially inside the stator end windings is provided with a thin walled lining fitting closely in the stator bore and projecting slightly from the stator end face. The projecting lining portion serves as abutment and aligning means for the7 cup-like bearing support without having to take up mechanical loads. The lining blanks off the statorbore against bonding agents or molding compounds employed for joining the bearing support means to the stator and for embedding and insulating the stator windings in the stator slots.

3,740,599

DYNAMOELECTRIC MACHINE ASSEMBLY

Richard W. Dochterman, Fort Wayne, Ind., assignor to General Electric Company, Fort Wayne, Ind.

Filed Nov. 19, 1971, Ser. No. 200,525
Int. Cl. H02k *5/00*
U.S. Cl. 310—91 **9 Claims**



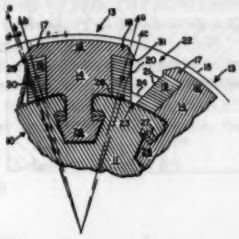
Predetermined outer peripheral configuration of motor with spaced apart coolant passing openings therein may be augmented with adapter. Such may be clips fastened to the motor adjacent surface. Clips have resiliently movable elements that snap fit in motor structure openings so as to facilitate assembly and yet provide a reliable and stable arrangement. Clips resist undesirable distortion or deformation thereof during use and include offset stabilizing segments. Clips may be fabricated by stamping clip blanks from a strip of sheet material and then forming the stamped blanks to a desired clip configuration.

3,740,600

SELF-SUPPORTING COIL BRACE

Barry J. Turley, Wattsburg, Pa., assignor to General Electric Company, Erie, Pa.

Filed Dec. 12, 1971, Ser. No. 206,826
Int. Cl. H02k *3/52*
U.S. Cl. 310—194 **5 Claims**



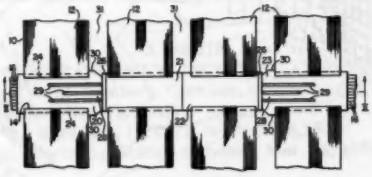
A wedge-shaped device to be frictionally inserted between adjacent pressed-to-form, edge-wise-wound, coils of a salient pole machine to prevent separation of the coils from the poles by the tangential component of centrifugal force acting on the coils. A flange portion integrally secured to the inner end of the wedge extends in opposite directions to be interposed in close relationship between the rotor core and each of the adjacent coils to hold the wedge in place.

3,740,601

DYNAMOELECTRIC MACHINE SLOT WEDGE AND FILLER LOCKING MEANS

Richard L. Amasino, Trafford, and Paul S. Johrde, Murrysville, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 26, 1971, Ser. No. 137,466
Int. Cl. H02k *3/48*
U.S. Cl. 310—214 **5 Claims**



For retention of a coil in dynamoelectric machine core slots, a slot wedge is provided with a compressible end that is normally oversized in relation to the slot width. The wedge is compressed when driven through the slot. The oversized portion then expands when it reaches the first vent duct and locks the wedge in the slot. Another feature is to use a flexible insulating tape between the coil and the slot filler strips with ends extending from the slot so that they can be wrapped around the ends of the filler strips and be secured by a locking type wedge, which may be as described above, at each end of the stack.

3,740,602

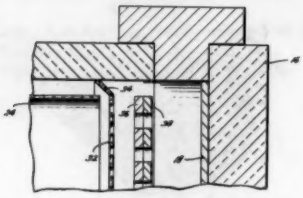
STORAGE TUBE WITH PHOTOCONDUCTOR ON MESH SIDE FACING CONDUCTIVE COATING

Rheinhold C. Salgo, Richardson, Tex., assignor to General Electrodynamics Corporation, Garland, Tex.

Division of Ser. No. 834,452, June 18, 1969, Pat. No. 3,649,866. This application Dec. 16, 1971, Ser. No. 208,769
Int. Cl. H01j *31/26*
U.S. Cl. 313—65 A **4 Claims**

A television camera storage tube having the photoconductor deposited on a mesh positioned between the conductive

coating and the source of electrons, the photoconductor being on the side of the mesh facing the conductive coating, and acting as a potential barrier to flow of electrons to the conductive coating, such flow of electrons varying in proportion to the



degree of illumination on elemental areas of the photoconductor, and the method of operating such a tube in which a charge pattern on the photoconductor is erased by the impingement of electrons on it.

3,740,603

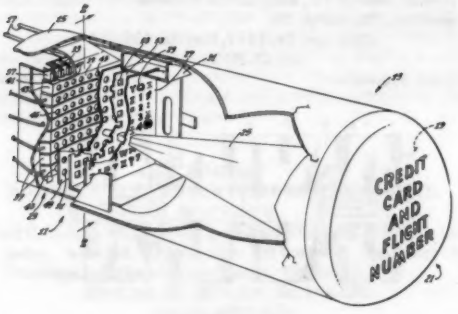
CATHODE RAY DISPLAY TUBE WITH BLANKING GRID

Kurt W. Kuhn, Woodland Hills, Calif., assignor to Industrial Electronic Engineers, Inc., Van Nuys, Calif.

Filed Mar. 30, 1972, Ser. No. 239,534

Int. Cl. H01j *29/46*

U.S. Cl. 313—86 **19 Claims**



A display tube having a vacuum envelope with a fluorescent screen at one end thereof and a plurality of electron flood guns projecting a plurality of characters upon the screen from the other end of the display tube. The flood guns disposed in rows and columns and including a plurality of first means collectively energizable to provide a cloud of electrons for each one of the columns of the flood guns. A plurality of second means each associated with a respective row of the flood guns divides each of the clouds of electrons into a plurality of individual portions each associated with one of the flood guns. Third means accelerate each of the portions of the clouds of electrons into an individual stream of electrons to project one of the characters upon the screen. The second means can be selectively energized to inhibit the formation of the streams of electrons associated with a row of the flood guns.

A plurality of fourth means each associated with one of the first means are selectively energizable to inhibit the formation of the cloud of electrons by the associated energized first means. Thus the fourth means enable the columns of the flood guns to be individually inhibited and the second means enable rows of the flood guns to be individually inhibited so that a single character can be displayed.

3,740,604

ELECTRIC GAS-DISCHARGE LAMP

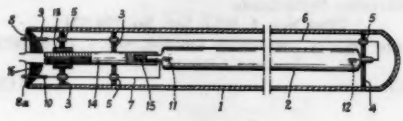
Jean Phillipe Fauroux, Paris, France, assignor to Societe Anonyme dite: Societe Nationale des Petroles d'Aquitaine, Courbevoie, France

Filed Mar. 16, 1971, Ser. No. 124,823

Claims priority, application France, Mar. 17, 1970, 7009499

Int. Cl. H01j *17/16*

U.S. Cl. 313—220 **2 Claims**



An electric gas-discharge lamp consisting of an elongated burner filled with a volatilizable substance and with an electrode at each end, and a tube surrounding this burner, characterized in that the elongated tube has at least one concave end section, this lamp, when it is excited, emitting light the wavelength of which depends of the substance with which the burner is filled.

3,740,605

HIGH PRESSURE MERCURY VAPOR DISCHARGE LAMP

Jacques Climeut Divoix, Mesnil-le-Roi, and Andre Marc V. Taxil, Rueil-Malmaison, both of France, assignors to Claude, Paris, France

Filed Aug. 24, 1971, Ser. No. 174,535

Claims priority, application France, Aug. 27, 1970, 7031287

Int. Cl. H01j *61/20*

U.S. Cl. 313—229 **2 Claims**

The addition of suitable proportions of mercury iodide and other selected metals to a mercury vapor lamp containing sodium iodide limits the change in operating voltage with time and provides longer life.

3,740,606

VIBRATION SUPPRESSOR IN CATHODE ASSEMBLY FOR ELECTRON DISCHARGE DEVICE

Thomas O'Marah Hoppel, Hollidaysburg, Pa., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Sept. 1, 1971, Ser. No. 177,040

Int. Cl. H01j *1/24*

U.S. Cl. 313—340 **2 Claims**

An insulator coil vibration suppressor comprised of a resilient member which is electrically insulating is force fitted into the top of a hollow tubular cathode between the interior wall thereof and the outside surface of an insulator which sur-

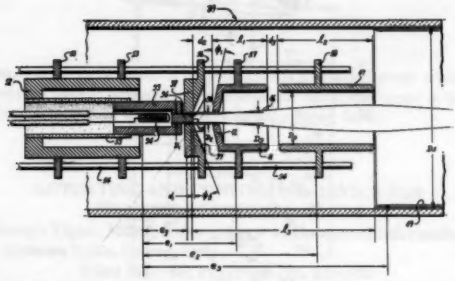
rounds the heater. The suppressor eliminates vibrations from the coil and thus reduces extraneous noise developed by the tube.

3,740,607

LAMINAR FLOW ELECTRON GUN AND METHOD

Aris Silzars, Redwood City, and David J. Bates, Los Altos, both of Calif., assignors to Watkins-Johnson Company, Palo Alto, Calif.

Filed June 3, 1971, Ser. No. 149,445
Int. Cl. H01j 29/56
U.S. Cl. 315—15 24 Claims



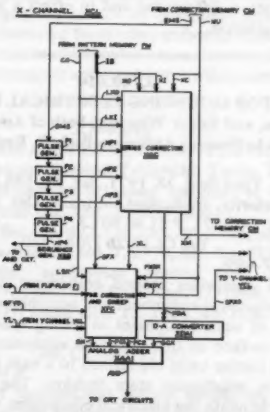
A laminar flow electron gun for forming an electron beam including a cathode for emitting electrons, an apertured dish-shaped electrode surrounding the cathode surface and an anode spaced from said cathode and electrode and cooperating therewith to provide a substantially uniform electric field at the surface of said cathode to cause electrons to emit normally from the entire surface in a beam, said anode also forming a divergent electrostatic lens along the path of the beam and accelerating and focusing means disposed further along the path of the beam to accelerate and focus the beam at a target.

3,740,608

SCANNING CORRECTION METHODS AND SYSTEMS UTILIZING STORED DIGITAL CORRECTION VALUES

Solomon Manber, Sands Point; Michael J. McGovern, Huntington, both of N.Y., and Wesley E. Stupar, Granada Hills, Calif., assignors to Alphanumeric Incorporated, Lake Success, N.Y.

Filed Aug. 18, 1970, Ser. No. 64,739
Int. Cl. H01j 29/70
U.S. Cl. 315—27 GD 5 Claims



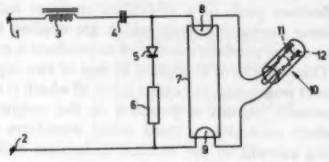
There is disclosed a method and several embodiments of apparatus for the correction of pin-cushion and other distortions in a cathode-ray tube wherein there are stored digital correction values associated with particular regions of the tube. As these regions are called for the associated correction values are used to modify the electron-beam deflection, focus, and intensity signals.

3,740,609

ARRANGEMENT FOR THE IGNITION AND ALTERNATING CURRENT SUPPLY FOR A GAS-AND/OR VAPOR DISCHARGE LAMP

Jozef Cornelis Moerkens, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 15, 1971, Ser. No. 198,838
Claims priority, application Netherlands, Nov. 21, 1970, 7017064
Int. Cl. H05b 41/00
U.S. Cl. 315—200 11 Claims



The invention relates to an arrangement for igniting and supplying a discharge lamp, particularly a long low-pressure mercury vapor discharge lamp of about 2.5 meter. Said lamp has a relatively high ignition voltage so that it can not be ignited with the aid of a normal glow discharge starter.

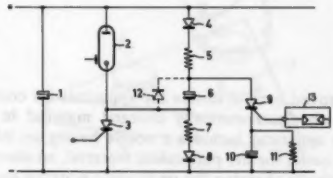
According to the invention a circuit is used in which with the aid of a diode branch a voltage doubling is effected at which the lamp can be ignited. In addition this circuit includes a resistor having a positive temperature characteristic which, after ignition of the lamp, renders the diode branch inoperative. By using the voltage doubling, a glow discharge starter can be used which must, however, be proportioned for a voltage which is generally higher than the conventional voltage.

3,740,610

SWITCH ARRANGEMENT INCLUDING A THYRISTOR

Gerhard Roncke, Hamburg, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 19, 1971, Ser. No. 126,152
Claims priority, application Germany, Mar. 26, 1970, P 20 14 923.9
Int. Cl. H05b 41/32, 41/40
U.S. Cl. 315—241 P 10 Claims



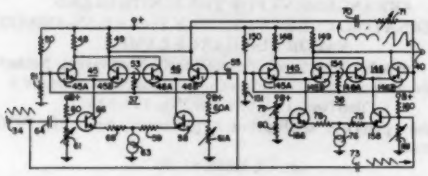
A switching circuit for a flash discharge tube includes a first thyristor in series with the tube across a DC voltage source. The thyristor is rapidly extinguished by an auxiliary circuit that includes, in series, a first capacitor, a second thyristor, and the parallel connection of a second capacitor and a resistor. A charge circuit for the first capacitor is connected partly in parallel with the tube and is exclusive of the first thyristor. A preferred embodiment also includes a diode in shunt with the first capacitor. The novel circuit is arranged to prevent reverse charging of the capacitors so that electrolytic capacitors may be used which results in a compact flash unit.

3,740,611

VERTICAL DEFLECTION WAVEFORM GENERATOR

William H. Slavik, Palos Hill, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed July 28, 1971, Ser. No. 166,837
Int. Cl. H01j 29/70
U.S. Cl. 315—27 GD 6 Claims



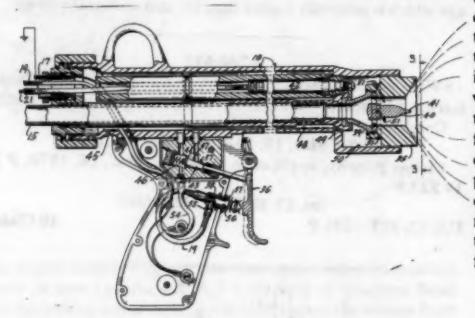
A waveform generator for supplying driving current to the vertical deflection coils of a television receiver includes a source of linear sawtooth signals which are applied in phase opposition to a first product multiplier to produce a parabolic waveform. This waveform is applied to one of two inputs of a second product multiplier, the other input of which is supplied with the sawtooth signals to produce at the output of the second product multiplier a third order waveform used to supply driving current to the vertical deflection coils of the television receiver.

3,740,612

APPARATUS FOR COATING WITH ELECTROSTATICALLY CHARGED PARTICULATE MATERIALS

William D. Gauthier, Sylvania Township, and Daniel M. Rogers, Toledo, both of Ohio, assignors to Champion Spark Plug Company, Toledo, Ohio

Filed May 28, 1971, Ser. No. 147,752
Int. Cl. B05b 5/00
U.S. Cl. 317—3 8 Claims



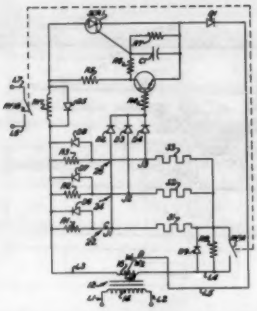
An improved control device for apparatus for coating articles with an electrostatically charged material in discrete form. The apparatus includes a nozzle having an inlet and a discharge outlet for the particulate material, an electrode for electrostatically charging the particulate material and at least one passage for directing a stream of vortex gas to impart a vortical motion to the particulate material discharged from the nozzle. A trigger on the apparatus operates first and second gas valves. The first valve controls a stream of gas to the vortex gas passages in the nozzle for controlling the pattern of the sprayed material and the second valve operates a pneumatic control to cause a high voltage to be applied to the electrode in the nozzle and to cause a pump to deliver to the nozzle inlet a stream of gas having the particulate material dispersed therein. In a preferred form, the trigger opens the first valve before the second valve and closes the second valve before the first valve. Provision is made for easily cleaning residual material from the pump, the nozzle and an interconnecting tube when changing the material to be sprayed.

3,740,613

APPARATUS FOR CONTROLLING THE ENERGIZATION OF A LOAD

Richard W. Strachan, Providence, R.I., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 12, 1972, Ser. No. 243,328
Int. Cl. H02h 7/08
U.S. Cl. 317—13 C 8 Claims



A plurality of condition responsive impedances, such as PTC thermistors are each connected to reference impedances to form voltage dividers which form half of a bridge circuit. The voltage divider junctions are coupled through diodes to the base of an NPN transistor in the detector of the bridge circuit, the emitter-collector circuit of the transistor being connected across the gate cathode circuit of a silicon controlled rectifier which is used to control the energization of a serially connected relay coil. In the absence of a predetermined condition, such as excessive temperature in a load, the silicon controlled rectifier is gated on each half cycle thereby allowing current to flow through the relay coil to energize the load. On the occurrence of the predetermined condition, i.e., excessive temperature, the impedance value of the condition responsive impedances change and cause conduction of the transistor which shunts current away from the gate of the silicon controlled rectifier thereby deenergizing the relay coil. Differential between the temperature at which energization and deenergization of the system occurs is provided by a reset impedance with contacts coupled thereacross, the contacts being closed when the relay coil is energized. Bypass diodes are connected across the reset and reference impedances to increase the temperature differential and to effect a longer delay before reenergization.

3,740,614

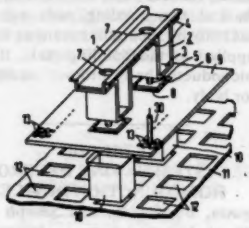
FRAME FOR MOUNTING ELECTRICAL EQUIPMENT

Miklos Baso, and Edgar Wiessner, both of Amberg, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Sept. 28, 1971, Ser. No. 184,469
Claims priority, application Germany, Oct. 1, 1970, P 20 48 237.5; Aug. 14, 1971, P 21 40 801.5
Int. Cl. H02b 1/04, 1/20
U.S. Cl. 317—99 8 Claims

A frame comprises spaced equipment carrier units for mounting electrical equipment and accommodates the electrical wiring of such equipment in wiring spaces beneath the mounting surface of the electrical equipment carriers. The equipment carrier units are affixed to a base place by spacers arranged in mushroom stem fashion. The wiring is thus disposable beneath the electrical equipment. Comb plates are provided between the equipment carrier units and the base plate for holding individual wires between the comb teeth

thereof. Lip-shaped extensions are provided in the comb teeth for holding the individual wires between them. The lip-shaped



extensions have cutouts or projections formed therein which provide detent action for the individual electrical wires in the direction of their insertion between the comb teeth.

3,740,615

ACTUATING AND CONFIRMING DEVICE FOR PRINTING ELECTROMAGNETS

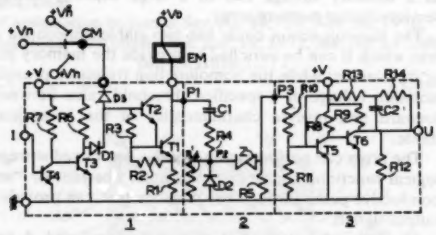
Giorgio Vigini, Milan, Italy, assignor to Honeywell Information Systems Italia, Caluso, Italy

Filed Mar. 10, 1972, Ser. No. 233,660

Claims priority, application Italy, Mar. 20, 1971, 22041 A/71

Int. Cl. H01h 47/32

U.S. Cl. 317—148.5 R **7 Claims**



A device is provided for commanding and confirming the operation of an electromagnet used for actuating print hammers in high speed printers. The electromagnet windings are fed through a constant current source and a threshold device detects the voltage pulse caused by armature movement, this pulse being discriminated from other pulses by suitable timing devices. The detection of the pulse causes interruption of current to the electromagnet and its absence triggers an alarm.

3,740,616

ELECTRICALLY LUMINESCENT DEVICE

Norio Suzuki, Tokyo; Yoshimi Takiguchi, Tendo, and Tadao Kohashi, Yokohama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

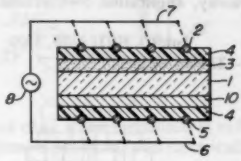
Continuation of Ser. No. 677,138, Oct. 23, 1967, abandoned. This application Jan. 2, 1970, Ser. No. 482

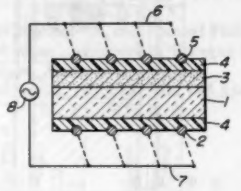
Claims priority, application Japan, Oct. 27, 1966, 41/71302; Oct. 27, 1966, 41/71304; Oct. 27, 1966, 41/71305; Oct. 27, 1966, 41/71306; Oct. 27, 1966, 41/71307; Oct. 27, 1966, 41/71308

Int. Cl. H01l 15/00

U.S. Cl. 317—234 R **7 Claims**

An electrically luminescent device having an electroluminescent element and associated power supply electrodes, at least one of the electrodes being in the form of a gapped structure consisting of fine metal wires which are arranged in parallel with each other or in a reticulate fashion. In the device, mere coating or placement of a low-resistance substance such as water, an alcohol, a conductive paint or an evaporated





metal film on the gap portion of the gapped electrode in such a manner as to conform with the shape of a character or pattern to be displayed can easily attain the luminous display of the character or pattern.

3,740,617

SEMICONDUCTOR STRUCTURE AND METHOD OF MANUFACTURING SAME

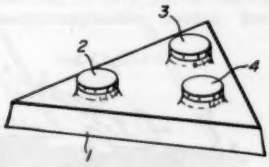
Iwao Teramoto, Ibaragi-shi; Shinichi Nakashima, Suita-shi; Hitoo Iwasa, Takatsuki-shi, and Yukio Miyai, Osaka, all of Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan

Filed Nov. 13, 1969, Ser. No. 876,280

Claims priority, application Japan, Nov. 20, 1968, 43/85703

Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317—234 R **1 Claim**



A semiconductor structure and a method of manufacturing same wherein at least three mesa semiconductor units are formed in a regularly spaced relationship on a single substrate and a heat dissipator is attached to the mesa surface of each of the units, thereby stabilizing and ensuring the mounting of the heat dissipator as well as attaining a considerably improved heat dissipation property. The structure is useful for a large heat loss semiconductor such as a microwave generating avalanche diode.

3,740,618

SEMICONDUCTOR UNIT AND METHOD OF MANUFACTURE THEREOF

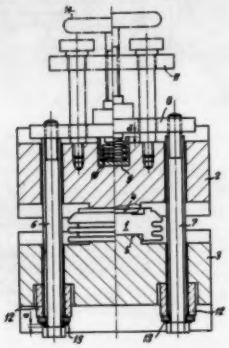
Xaver Vogel, Nussbaumen, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

Filed Sept. 14, 1971, Ser. No. 180,415

Claims priority, application Switzerland, Sept. 29, 1970, 14565/70

Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317—234 R 3 Claims



A semiconductor unit which comprises one or more semiconductor elements in disc form assembled between two clamping members which are drawn towards each other by means of clamping bolts which pass through the clamping members and terminate in a bridging yoke. Tightening of the bolts moves the yoke in the direction of the clamping members and this movement is transmitted to one of the clamping members by way of spring means thereby to apply pressure to the semiconductor element. The spring means is provided to allow for movement of the clamping members at they heat up and expand during operation of the semiconductor unit.

3,740,619

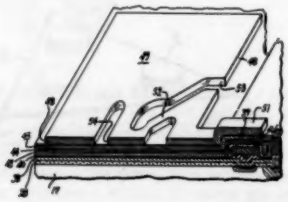
SEMICONDUCTOR STRUCTURE WITH YIELDABLE BONDING PADS HAVING FLEXIBLE LINKS AND METHOD

Warren C. Rosvold, Sunnyvale, Calif., assignor to Signetics Corporation, Sunnyvale, Calif.

Filed Jan. 3, 1972, Ser. No. 214,592

Int. Cl. H01l 5/00

U.S. Cl. 317—234 R 18 Claims



A semiconductor structure comprising a semiconductor body having a surface with devices formed therein having portions thereof extending to the surface. A layer of insulating material is disposed on the surface. Contact means is carried by said layer and extends through said layer to make contact to said portions of said device. Bonding pads overlie the semiconductor body. Flexible links are formed as a part of the pads and secure the pads to the contact means. The bonding pads are also secured to the semiconductor body by shearable means which will permit the bonding pads to be sheared from the semiconductor body at the shearable means rather than in the semiconductor body and causing damage to the semiconductor body.

In the method, flexible links are formed as a part of the bonding pads and the bonding pads are secured to the semiconductor body by shearable means so that when external pressure is applied to the bonding pads, they will separate from the semiconductor body without causing damage to the semiconductor body.

3,740,620

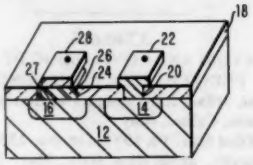
STORAGE SYSTEM HAVING HETEROJUNCTION-HOMOJUNCTION DEVICES

Benjamin Agusta, Burlington, and Joseph J. Chang, Shelburne, both of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 22, 1971, Ser. No. 155,498

Int. Cl. H01l 19/00

U.S. Cl. 317—235 R 7 Claims



This invention describes a homojunction transistor having a heterojunction diode formed on its emitter which can be used as a memory storage cell in a large capacity monolithic semiconductor memory array.

The heterojunction diode has two stable impedance states into which it can be switched to provide the memory portion of the element while the homojunction transistor provides an isolation voltage of a specified threshold value between the forward and reverse characteristics of the heterojunction diode.

The array can perform main storage, associated storage and logical functions and does not contain aberrant or "sneak" conductive paths through the memory that can provide false output signals.

The cell and a method of making it is disclosed. A storage system incorporating these memory cells or elements as an array is also disclosed.

3,740,621

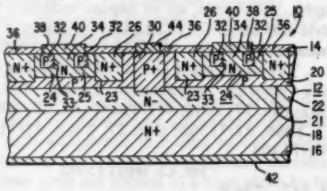
TRANSISTOR EMPLOYING VARIABLE RESISTANCE BALLASTING MEANS DEPENDENT ON THE MAGNITUDE OF THE EMITTER CURRENT

Donald Raymond Carley, Somerville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 30, 1971, Ser. No. 176,176

Int. Cl. H01l 11/00, 15/00

U.S. Cl. 317—235 R 5 Claims



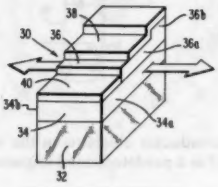
A transistor includes emitter, base, and collector regions formed in a semiconductor body. The transistor has means coupled to the emitter region to provide a variable ballasting resistance which is dependent upon emitter current.

3,740,622

ELECTROLUMINESCENT SEMICONDUCTOR DEVICE FOR GENERATING ULTRA VIOLET RADIATION

Jacques Isaac Pankove, and Peter Edward Norris, both of Princeton, N.J., assignors to RCA Corporation, New York, N.Y.

Filed July 10, 1972, Ser. No. 270,220
Int. Cl. H01l 3/00
U.S. Cl. 317—235 R 6 Claims



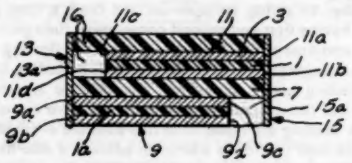
An electroluminescent semiconductor device including a body of crystalline gallium nitride, a layer of silicon nitride on a surface of the body, a metal layer on the silicon nitride layer and an ohmic metal contact on the body. When a bias is applied between the metal layer and the contact which with respect to the ohmic contact is first negative and then positive, ultra violet radiation will be emitted from the body.

3,740,623

SELF-HEALING NON-METALLIZED POLYSTYRENE CAPACITOR

Joseph A. Toro, Ogallala, Nebr., assignor to TRW Inc., Cleveland, Ohio

Continuation-in-part of Ser. No. 93,735, Nov. 30, 1970, abandoned. This application Jan. 14, 1972, Ser. No. 217,980
Int. Cl. H01g 3/215
U.S. Cl. 317—258 2 Claims



A self-healing capacitor made by forming carrier electrodes by metallizing both surfaces of a polycarbonate film without margins, convoluting two carrier electrodes with a polystyrene dielectric film therebetween and with the side edges of the two carrier electrodes offset from each other, and then metal spraying the side edges of the convolute to conductively join the metallized coatings on the opposite surfaces of the carrier electrodes.

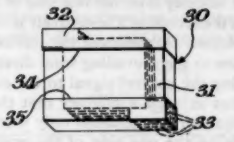
3,740,624

MONOLITHIC CAPACITOR HAVING CORNER INTERNAL ELECTRODE TERMINATIONS

Arthur C. McAdams, Jr., and Vincent A. Tomaselli, both of Wichita Falls, Tex., assignors to Sprague Electric Company, North Adams, Mass.

Filed June 21, 1972, Ser. No. 265,070
Int. Cl. H01g 1/14
U.S. Cl. 317—258 4 Claims

A monolithic ceramic capacitor has its alternate internal electrodes terminating in opposite corners of the ceramic chip, so as to facilitate the application of external metal terminations by automatic metallizing equipment. This internal electrode arrangement, especially useful in a square-shaped ceramic chip, eliminates the need for chip orientation prior to the introduction of the chip to automatic metallizing equipment. The finished chip, when metallized in either of the two possible orientations, is physically and electrically identical.

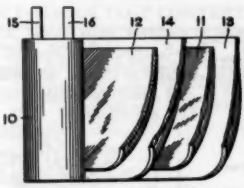


3,740,625

ELECTRICAL CAPACITORS WITH ESTER IMPREGNANTS

Sidney D. Ross, Williamstown, and Manuel Finkelstein, North Adams, both of Mass., assignors to Sprague Electric Company, North Adams, Mass.

Filed Nov. 4, 1971, Ser. No. 195,856
Int. Cl. H01g 3/19
U.S. Cl. 317—259 10 Claims



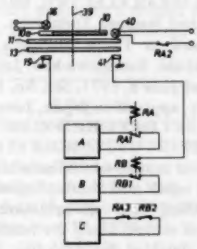
Esters are used as impregnants in AC and energy storage capacitors, wherein the esters have alkyl groups substituted around the carbonyl carbon atom to effectively prevent hydrolytic attack thereof by water or hydroxide ions. Appropriate substitution in both the acid and the alcohol moieties insures a hydrolytic stability for the esters produced thereby.

3,740,626

ATMOSPHERIC CONTAMINANT COLLECTOR

Knut Raymond Knutson, Sundbyberg; Michele Morichetto, Ekero, and P. Magnus Wannfors, Stenhamra, all of Sweden, assignors to Incentive Research & Development AB,, Bromma, Sweden

Filed Dec. 16, 1971, Ser. No. 208,739
Claims priority, application Sweden, Dec. 23, 1970, 17532/70
Int. Cl. G01n 31/00
U.S. Cl. 317—262 R 5 Claims



A device for controlling the operation of an atmospheric contaminants collecting apparatus comprises means, which

are responsive to the prevailing wind velocity at the site of the collecting apparatus and which generate a control signal maintaining the collecting apparatus in operation only when the prevailing wind velocity is on the one side of a predetermined limit value, that is exceeds or alternatively is less than this limit value. In a preferred embodiment the device comprises also means responsive to the prevailing wind direction for modifying or influencing the control signal to the contaminants collecting apparatus in such a manner that the collecting apparatus is maintained in operation only when the prevailing wind velocity is on the one side of the predetermined limit value and at the same time the prevailing wind direction lies within a predetermined sector angle.

3,740,627

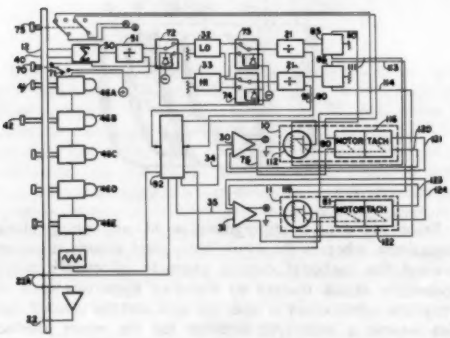
SERVO MOTOR DRIVEN R.F. ATTENUATOR

David R. Martin, and Walter A. Sauter, both of c/o John E. Wagner, 1041 East Green Street, Suite 202, Pasadena, Calif.

Continuation-in-part of Ser. No. 65,561, Aug. 20, 1970, Pat. No. 3,648,176. This application Sept. 22, 1971, Ser. No. 182,810

Int. Cl. H04q *9/00*

U.S. Cl. 318—16 **4 Claims**



A system for cancelling or suppressing the amplitude of the carrier and sideband signals of a radio transmitter to facilitate analysis of spurious and noise outputs from the transmitter is disclosed. The system includes means for deriving a carrier cancelling signal from an actual sample of the transmitter output, signal processing circuitry and summing means. Also, an electromechanical signal controller is disclosed capable of continuously correcting the amplitude of the cancellation signal by a selected ratio with respect to the transmitter test signal.

3,740,628

LINEAR ELECTRIC MOTOR

Junpei Inagaki and Susumu Tadakuma, both of Yokohama, Japan, assignors to Tokyo Shibaura Electric Company, Ltd., Kawasaki-shi, Kanagawa-ken, Japan

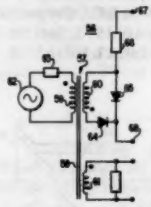
Filed June 8, 1971, Ser. No. 151,1.

Claims priority, application Japan, June 11, 1970, 45/49985

Int. Cl. H02k *41/02*

U.S. Cl. 318—135 **6 Claims**

A linear electric motor, which includes an elongated reaction rail having north and south magnetic poles alternately disposed therealong and an armature having polyphase windings which is moved along the reaction rail, is provided with a position detector for detecting the relative position between the magnetic poles of the reaction rail and the armature. The armature windings are energized from an electric power supply through a static commutator formed of semiconductor elements. The position detector responds to the speed electromotive force induced in the armature windings and



causes the semiconductor elements in the static commutator to turn on and off in a perdetermined sequence.

3,740,629

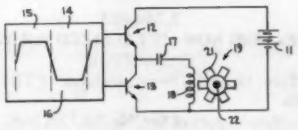
A.C. MOTOR DRIVE CIRCUIT

Walter Kohlhagen, 818 Oakley Avenue, Elgin, Ill.

Continuation-in-part of Ser. No. 57,495, July 23, 1970, abandoned. This application Mar. 11, 1971, Ser. No. 123,304

Int. Cl. H02p *7/00*

U.S. Cl. 318—138 **26 Claims**



A synchronous self-starting motor is driven with constant rotational velocity in response to current fed to an excitation winding thereof from a D.C. power source. Switch means is responsive to gating voltages derived from a time reference source having first and second consecutive time periods. During the two time periods, current is smoothly flowing with constantly changing slope in a series circuit including the excitation winding and a capacitor. The relative length of each period and the natural frequency of the drive circuit and excitation winding are equal to or less than the average frequency of the time reference source to achieve a sine-like voltage waveform across the capacitor. The switching means can be either like or complementary type transistors, having the ability to conduct current in either direction when forward biased, as well as electromechanical switches or vacuum tubes with shunting diodes. A flywheel is freely mounted relative to the motor shaft to assist in maintaining constant rotational velocity of the shaft. The first and second time periods can be of the same duration or of different durations as long as approximately the same force is applied to the motor rotor during each period. the same force is applied to the motor rotor during each period.

3,740,630

VARIABLE-RELUCTANCE ELECTRIC MOTOR

Jean Jarret, La Champanelle, Chemin du Clos Baron, Fourqueux, and Jacques Jarret, 35, avenue du Belloy, Le Vesinet, both of France

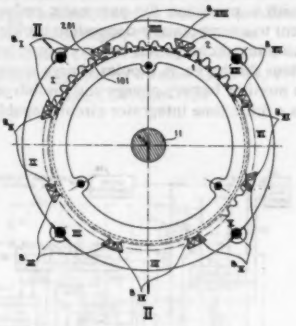
Filed Feb. 28, 1972, Ser. No. 229,805

Int. Cl. H02k *23/42*

U.S. Cl. 318—138 **3 Claims**

Variable reluctance electric motor. Said motor comprises a rotor having uniformly distributed teeth, an annular stator having magnetic studs grouped in equal length sectors but shifted by a quarter of a stud pitch from a sector to the following, and a set of peripheral fixed windings each surrounding all the studs of a sector and supplied by signals from a timing

generator controlled by a direct current source and by the movement of the rotor so that the half of said windings are



energized at any time and are switched for each rotation of the rotor of a quarter of a stud pitch.

Said motor may operate at a low speed.

3,740,631

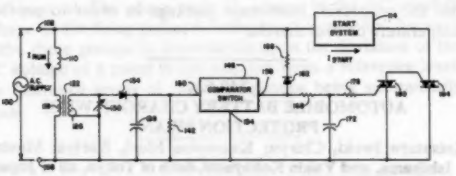
VOLTAGE COMPARATOR CONTROLLED MOTOR STARTING CIRCUIT

David C. Fricker, Hurst; Thomas F. Whittaker, Fort Worth; Leon Fink, Jr., Arlington, and Stephen K. Lam, Dallas, all of Tex., assignors to ECC Corporation, Euless, Tex.

Filed July 23, 1971, Ser. No. 165,670

Int. Cl. H02p *1/44*

U.S. Cl. 318—221 E **19 Claims**



A speed responsive motor starting circuit includes a pair of bilateral triode switches connected to the motor start system for controlling the current flow therethrough. A capacitor is connected to the control electrode of one of the triode switches for supplying enabling current thereto. Current supplied to the capacitor by an A. C. supply, the amount supplied being controlled by a comparator switch in accordance with the relative magnitudes of two voltages applied to the comparator switch. One such voltage is inversely proportional to the speed of the motor and is generated by a current-sensing transformer coupled in circuit with the motor run winding. The other such voltage is applied by the A. C. supply through a diode to the comparator switch. Various solid state devices may be utilized as the comparator switch.

3,740,632

MOTOR REVERSING AND STOPPING CIRCUIT

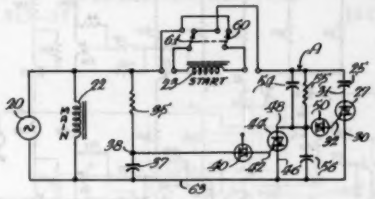
John A. Whitney, Fort Wayne; Richard E. Woods, Markle, and William H. Hohman, Bluffton, all of Ind., assignors to Franklin Electric Co., Inc., Bluffton, Ind.

Continuation-in-part of Ser. No. 72,675, Sept. 16, 1970, abandoned. This application Nov. 1, 1971, Ser. No. 194,744

Int. Cl. H02k *1/42*

U.S. Cl. 318—289 **22 Claims**

In an AC motor having a main winding and a start winding, a triac uncouples the start winding from AC power when the motor reaches a preselected cut-out speed. When the motor is to be decelerated, a manual switch is actuated to reversely connect the start winding, producing an instant step change in phase which actuates the triac to recouple the start winding to AC power. In one embodiment for reversing the direction of rotation, the motor decelerates through zero and immediately accelerates in the opposite direction until the cut-out speed is reached, causing the triac to again uncouple the start winding.



A second embodiment, for stopping the motor, passes current for the main and start windings through a master power triac controlled by a gating circuit including a switch mounted to the rotor of the motor. As the motor decelerates to zero and just begins to accelerate in the opposite direction, the rotor mounted switch opens and deactuates the master power triac.

3,740,633

FREQUENCY-TO-VOLTAGE CONVERTER DEVICE

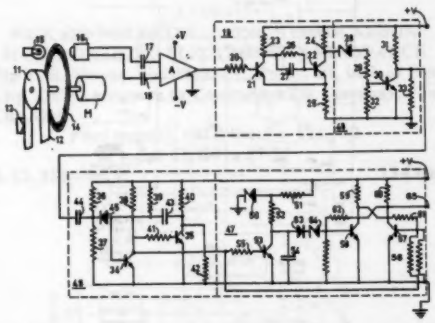
Pietro Buttafava, Milan, Italy, assignor to Honeywell Information Systems Italia, Caluso, Italy

Filed Feb. 14, 1972, Ser. No. 225,887

Claims priority, application Italy, Feb. 3, 1971, 21248 A/71

Int. Cl. H02p *5/16*

U.S. Cl. 318—328 **4 Claims**



A frequency-to-voltage converter for use with such devices as magnetic tape handling equipment is provided having a frequency error signal generator providing pulses, a constant current generator, a capacitor and two switches controlled by the pulses. One of the switches discharges the capacitor within a fixed time interval and the other switch connects the capacitor to the current generator for a time interval determined by the pulses. The capacitor is thus charged to reach a voltage of the next pulse, thereby providing a voltage across the capacitor terminals which is a continuous voltage error signal suitable for control purposes.

3,740,634

APPARATUS FOR CONTROLLING THE FEEDING OF PAPER IN HIGH-SPEED PRINTERS

Giorgio Bonzano, Caluso, Italy, assignor to Honeywell Information Systems Italia S.p.A., Milan, Italy

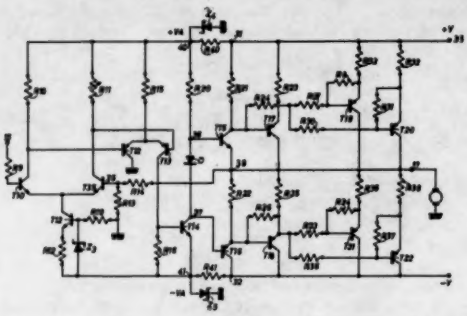
Division of Ser. No. 54,815, July 14, 1970, Pat. No. 3,656,041. This application Nov. 17, 1971, Ser. No. 199,809

Int. Cl. H02p *5/16*

U.S. Cl. 318—345 **2 Claims**

Apparatus for controlling the paper feeding in printing apparatus, wherein the feed motor speed is controlled by the

combined effect of a speed-space detector whose output is speed-proportional voltage and said pulses are compared with a predetermined pulse number, and wherein the results of said



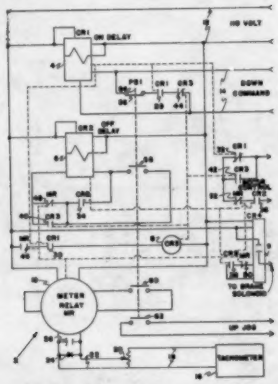
comparison are employed in combination to provide a suitable paper feed power control through a bidirectional amplifier which does not require a stabilized power supply.

3,740,635

OVERSPEED SENSOR FOR SAFETY BRAKE SYSTEM

Scott C. Grover, Bountiful, Utah, assignor to Kenway Engineering, Incorporated, Woods Cross, Utah

Filed Oct. 5, 1971, Ser. No. 186,742
Int. Cl. B66b 5/02
U.S. Cl. 318—382 **7 Claims**



A brake control system for elevating platforms comprising a timing relay connected to receive "Down" command signals, a meter relay connected to receive signals from a tachometer driven by the platform, and means responsive to signals from said timing relay and meter relay for controlling the elevating motor and brake systems of said platform.

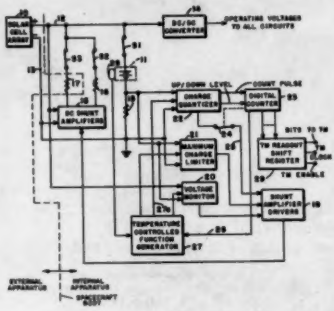
3,740,636

CHARGE REGULATOR AND MONITOR FOR SPACECRAFT SOLAR CELL/BATTERY SYSTEM CONTROL

Arthur F. Hogrefe, Silver Spring, and Ralph M. Sullivan, Beltsville, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 5, 1971, Ser. No. 196,029
Int. Cl. H02j 7/14
U.S. Cl. 320—2 **9 Claims**

An electronic system for providing fully automatic control of a spacecraft solar cell/battery electrical power system, including the provision of continuous telemetry monitoring of the battery charge state. Circuitry accurately measures, on an ampere-minute basis, the charging and discharging of the battery and functions to maintain the battery in a fully charged condition, with a provision for automatic reduction of the charge current to a temperature-dependent trickle value when the proper amount of charge has been returned to the battery after a previous discharge. A bipolar charge quantizer circuit is utilized to monitor battery charge and discharge operations and includes a finite time integrator circuit capable of supply-



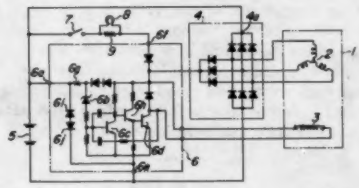
ing an output signal pulse each time the battery is charged or discharged by a predetermined amount. The quantizer is designed with a predetermined offset factor to account for battery inefficiency. Temperature dependent maximum battery voltage limiting and maximum charge current limiting are also provided, along with means which operate to automatically shunt excess electrical power from the solar cell array into the spacecraft instrument package in order to provide temperature control therein.

3,740,637

AUTOMOBILE BATTERY CHARGER WITH PROTECTION MEANS

Katsutaro Iwaki, Chiryu; Kazumasa Mori, Kariya; Masaru Ishihama, and Yukio Kobayashi, both of Tokyo, all of Japan, assignors to Nippondensco Co., Ltd., Kariya-shi, Aichi-ken, Japan

Filed Aug. 31, 1971, Ser. No. 176,511
Int. Cl. H02j 7/14
U.S. Cl. 320—61 **9 Claims**



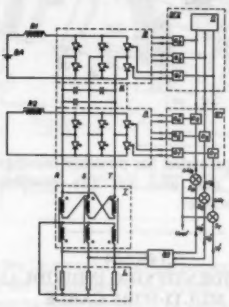
A device for charging storage batteries of a vehicle comprising a voltage regulator whereby the storage batteries are charged by a DC voltage obtained by rectifying an AC output voltage from an AC generator mounted on a vehicle, particularly, an automobile, so that the voltage across the storage batteries is detected thereby controlling the interruptions of an exciting current for the AC generator. Means including diodes arranged with selected polarity connections are included so as to provide paths for both overload voltages and inadvertent reverse connections of the vehicle storage battery.

3,740,638

CONVERTER CIRCUIT FOR GENERATION OF ASYMMETRIC REACTIVE POWER

Kjeld Thorborg, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vastera, Sweden

Filed Jan. 18, 1972, Ser. No. 218,790
Claims priority, application Sweden, Jan. 18, 1971, 507/71
Int. Cl. H02m 7/22
U.S. Cl. 321—5 9 Claims



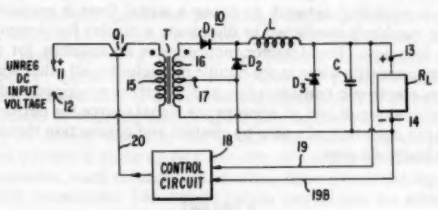
A converter connection for improving the symmetry of a three-phase network comprises a three-phase line-commutated controlled converter which has its AC terminals connected to the network and its DC terminals to a reactor. Firing pulses are supplied to the rectifiers of the three rectifier groups of the converter, each of which comprises the two rectifiers connected to one of the three phase conductors of the network to fire the two rectifiers of each group at a fixed 180° interval. The phase angle in relation to the AC network voltage of the firing pulses is individually controlled for each of the three groups in dependence upon the deviation of the AC voltage of a point in the network from a reference level, the reference levels of the three groups being substantially equal.

3,740,639

TRANSFORMER COUPLED SWITCHING REGULATOR

Finis Claude Easter, Canoga Park, Calif., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 6, 1972, Ser. No. 241,677
Int. Cl. H02m 3/28
U.S. Cl. 321—2 8 Claims



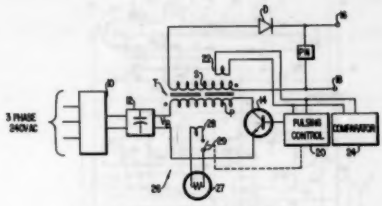
A switching regulator, of the type having a switching device whose state of conduction is controlled in response to the voltage across a load, which includes a transformer whose primary winding is connected in circuit with the switching device. A rectifier and inductive storage device are connected in circuit with the secondary winding, a diode being connected from one end of the secondary winding to one load terminal, for transferring energy from the secondary winding to the load at times when the switching device is rendered non-conductive.

3,740,640

RADAR POWER SUPPLY

Richard J. Ravas, Monroeville; Paul F. Pittman, and Gary F. Saletta, both of Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 8, 1970, Ser. No. 79,179
Int. Cl. G05f 1/56; H03k 17/60
U.S. Cl. 323—17 14 Claims



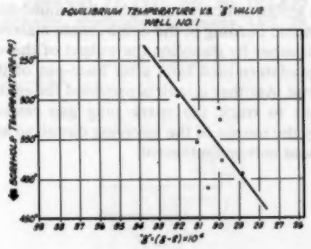
A radar power supply charges a pulse network in a sequence of high frequency charging pulses. Transformation, providing isolation and voltage boost between the primary power source and the pulse network, performed at high frequency, minimizes transformer size and weight. Means are provided for selectively adjusting the number of charging pulses and damping the last of the charging pulses, thereby eliminating requirements for filtering and precise regulation of primary power source while affording precise regulation of the voltage of the output energy pulse.

3,740,641

PROCESS FOR DETERMINING HYDROCARBON MATURITY USING ELECTRON SPIN RESONANCE

Philip T. R. Hwang, and Walter C. Pusey, III, both of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed Aug. 25, 1971, Ser. No. 174,758
Int. Cl. G01n 27/78
U.S. Cl. 324—0.5 R 13 Claims



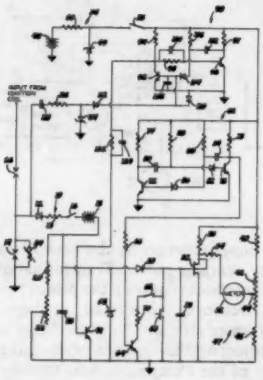
A process for predicting the presence and maturity of hydrocarbon material in a subterranean situs by initially treating a number of rock samples derived from an exploratory well or surface outcrops to remove certain materials therefrom, including carbonates and layered silicates. The samples, as thus prepared, are then subjected to observation of the paramagnetic resonance (electron spin resonance) properties of the kerogen entrapped in the samples, and from these properties, the maximum thermal histories of the samples are evaluated, and a maximal geothermal gradient for the formation is derived. The maximal geothermal gradient is extrapolated to a depth of interest to predict the type of hydrocarbon production, if any, which may be reasonably contemplated from that depth in the formation.

3,740,642

SPARK PLUG GAP RESISTANCE METER

David W. Taylor, Davison, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 24, 1972, Ser. No. 246,971
Int. Cl. G01m *15/00*
U.S. Cl. 324—16 R 4 Claims



A spark plug gap resistance meter for monitoring the resistance across a spark plug under dynamic conditions including a sampling circuit comprised of a voltage source and a resistor in shunt with the spark plug gap. The sampling circuit samples the resistance of the spark plug gap between ignition pulses supplied thereto. The output of the sampling circuit is a series of voltage pulses, each of which has a magnitude representing the resistance of the spark plug gap during the time period between two ignition pulses. A memory circuit memorizes the magnitude of the voltage pulse representing the minimum resistance across the spark plug gap and drives a meter to indicate the minimum resistance detected which corresponds to the maximum fouling of the spark plug gap. A circuit is provided for preventing the sampling circuit from detecting an erroneous spark plug gap resistance indication resulting from ionization currents during and immediately following ignition and burning of the combustible material in the combustion chamber by disabling the output of the sampling circuit for a predetermined time after burn-out of the combustible material. Another circuit is provided for enabling the memory circuit to track the spark plug gap resistance as represented by the output of the sampling circuit so as to provide a continuous indication thereof.

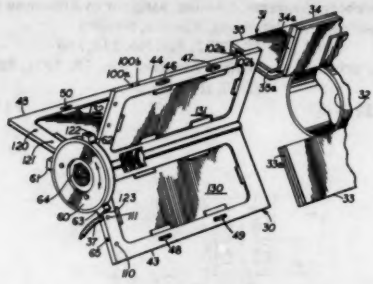
3,740,643

APPARATUS FOR MEASURING THE DISTANCE BETWEEN A WORKPIECE SURFACE AND A DATUM

Robert M. Lady, Sr., Cumming, and William G. Steiner, Smyrna, both of Ga., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 30, 1971, Ser. No. 176,125
Int. Cl. G01r *33/00*
U.S. Cl. 324—34 D 11 Claims

Measuring apparatus which accurately measures the distance between a surface and an imaginary datum line or plane. One or more transducers are mounted on a carrier which is positionable adjacent a surface which is to be measured with respect to an imaginary datum. The surface being measured may be in the form of a complex shape, and the transducers need not physically contact the surface. Correction factors are provided for possible misalignment of the transducer carrier and also for the possible non-linear response of the transducer.

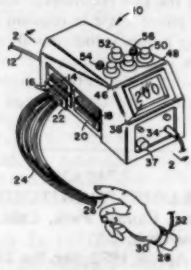


3,740,644

APPARATUS FOR IDENTIFYING INDIVIDUAL WIRES OF A MULTI-WIRE CABLE

Ronald H. Schag, Orange, and David M. Landis, Fullerton, both of Calif., assignors to Thomas & Betts Corporation, Elizabeth, N.J.

Filed June 15, 1970, Ser. No. 46,424
Int. Cl. G01r *19/16, 31/02*
U.S. Cl. 324—66 15 Claims



A wire detector for determining a pre-established designation of a wire in a random bundle of wires forming a cable and attached to a cable connector at one end thereof comprising, a means for receiving said connector for connecting each wire to an encoding network to cause a signal from a particular wire randomly contacted to illuminate a display for designating that wire. The detector incorporates a capability for detecting specific wires in the bundle by excluding all other wires from electronic consideration and is further equipped with a sensitive circuit and an appropriate signal source for performing the detection of a wire by contact and conduction through the body of a user.

3,740,645

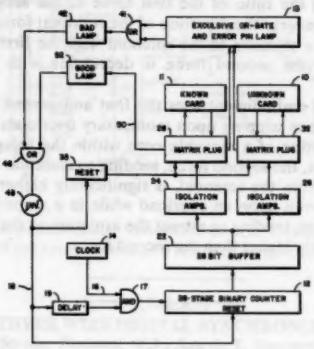
CIRCUIT TESTING BY COMPARISON WITH A STANDARD CIRCUIT

Harold D. Cook, Wheaton, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed Oct. 19, 1970, Ser. No. 81,914
Int. Cl. G01r *15/12*
U.S. Cl. 324—73 R 3 Claims

A circuit for comparing a known electronic circuit card with an unknown card of similar type wherein clock pulses are delivered to a multistage binary counter which delivers its output identically to the inputs of the known card and to the cor-

responding inputs of the unknown card. The corresponding inputs and outputs of the known card and unknown card are compared with each other by a plurality of exclusive OR-gates which generate an error signal in the event of any disagreement between the two cards. A disagreement signal causes the termination of the operation of the binary counter. This permits an operator to note the input or output of the unknown card that did not agree with the corresponding input or output of the known card and to repair the unknown card.

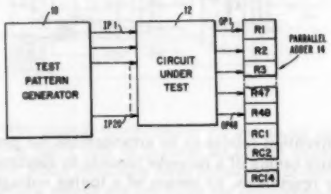


3,740,646

TESTING OF NON-LINEAR CIRCUITS BY ACCUMULATED RESULT COMPARISON

Maurice T. McMahon, Jr., Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 2, 1971, Ser. No. 168,259
Int. Cl. G01r 15/12
U.S. Cl. 324—73 R **23 Claims**



A method and apparatus for testing complex, nonlinear, binary circuits by applying a bilevel input electrical signal pattern, made up of a plurality of pattern increments, in sequence, each comprising a plurality of parallel bilevel signals to a plurality of corresponding input points in a circuit reference. A resulting output signal pattern is sensed at a plurality of output points in the circuit reference. The output signal pattern is made up of a plurality of pattern increments, in sequence, each respectively resulting from one of the input pattern increments. The output patten increments are added in parallel to provide a reference total.

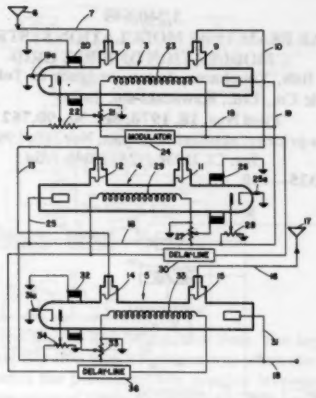
The procedure is then repeated using the identical input electrical signal pattern, except that the actual circuit to be tested is used in place of the circuit reference. The signal pattern is applied to a plurality of input points in the circuit being tested corresponding to the input points in the circuit reference, and the resulting output is sensed at a plurality of output points in said circuit corresponding to the output points in the reference. The resulting output patter increments are then added together in the same manner to provide a total for the tested circuit. This should be equal to the reference total; otherwise, the tested circuit is defective.

3,740,647

PULSED REPEATER AMPLIFIER

Jack C. Greene, Syosset, N.Y., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 29, 1959, Ser. No. 809,894
Int. Cl. H04b 7/14
U.S. Cl. 325—6 **3 Claims**



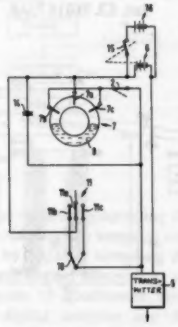
1. A pulsed repeater amplifier circuit comprising three traveling wave tubes, each said tube having a helical coil disposed therewithin; an input antenna; an output antenna; means connecting the said antennas and the said tubes in cascade so that a wave received on the input antenna is conducted successively through the said three tubes to the output antenna; means for directing an electron beam of predetermined amplitude along the axis of the helical coil of each tube; and means responsive to an individual periodic high voltage energization cycle for each coil for amplifying the wave during separate intervlas as it travels through each tube.

3,740,648

DISTRESS CALL SIGNALIZER OF THE MINIATURE TRANSMITTER TYPE

Alfred Grotjahn, Schmiedestrasse 35, Burgdorf, Germany

Filed Oct. 27, 1971, Ser. No. 192,835
Claims priority, application Germany, Oct. 28, 1970, P 20 52 939.9
Int. Cl. H04b 1/04
U.S. Cl. 325—113 **4 Claims**



A distress signal transmitter circuit comprising a position-sensitive mercury switch, and a pressure-sensitive mechanical switch, coupled in parallel to a transmitter and a power supply. A continuously charging-discharging capacitor, coupled to the power supply and the transmitter, causes the

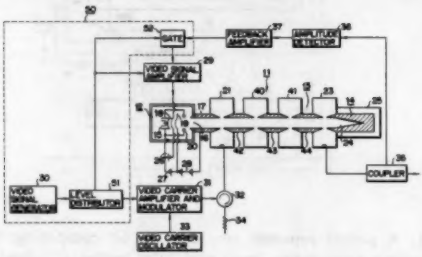
generation and transmission of signals at predetermined intervals. Displacement of the mercury switch or pressure on the mechanical switch, interrupts the transmission of the signals at the predetermined intervals and causes a continuous signal to be transmitted by the circuit, thus indicating a distress condition.

3,740,649

LINEAR BEAM TUBE MODULATION SYSTEM USING MODULATION OF FIRST GRID

Takeshi Itoh, Yokohama, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Nov. 18, 1970, Ser. No. 90,762
Claims priority, application Japan, Nov. 19, 1969, 44/92143
Int. Cl. H03c *1/28*; H04b *1/04*
U.S. Cl. 325—120 6 Claims



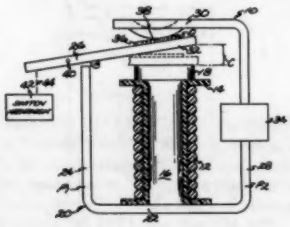
A system for operating a linear beam or an O-type microwave tube comprising a linear beam microwave tube having an electron gun with grid electrode for emitting electron beams, a microwave amplifying portion having input and output cavities so as to amplify television video signal carrier waves by the action of said electron beams, a collector for collecting said electron beams; means for supplying said input cavity with carrier waves modulated by television video signals; and means for subjecting said electron beams to density modulation by television video signals in the grid electrodes of the electron gun.

3,740,650

ELECTROMAGNETIC SWITCH

Aime J. Grenier, North Attleboro; Richard E. Suter, Norton, and Lawrence E. Cooper, Attleboro, all of Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 19, 1971, Ser. No. 134,997
Int. Cl. H01f *7/18*
U.S. Cl. 335—239 8 Claims



In an electromagnetic switch assembly having a solenoid and a movable armature attractable to the solenoid by a first electromagnetic force, improved control of armature movement is achieved including maintaining the armature away from the solenoid until a predetermined current condition exists and then causing the armature to move with improved rapid motion, that is with snap action, by applying a second force in the form of a magnetic bias to the armature in a direction opposing or negating a portion of the first force maintaining the armature away from the solenoid until the predetermined current condition comes into existence at which point the ratio of the first force to the second force changes to reverse the direction of the resultant force to allow the armature to move to the solenoid with the first force increasing as the second force is decreasing with armature movement.

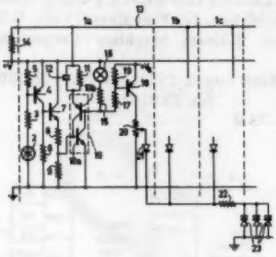
A second embodiment uses the first and second forces to avoid nuisance tripping upon momentary overloads by utilizing the position of a movable core within the solenoid. In a first position, the second force, tending to maintain the armature away from the solenoid, is significantly higher than the first force even upon an overload while in a second position the first force, tending to attract the armature to the solenoid, is significantly higher than the second force.

3,740,651

ARRANGEMENTS FOR TUNING A RECEIVER

Johannes Jan Mons, Emmasingel, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 5, 1971, Ser. No. 186,651
Claims priority, application Netherlands, Oct. 10, 1970, 7014892
Int. Cl. H04b *1/26*
U.S. Cl. 325—464 4 Claims



The invention relates to an arrangement for pre-adjustable transmitter tuning of a receiver tunable by electronically controllable reactances, by means of a tuning voltage optionally derived from a plurality of tuning potentiometers. Each tuning potentiometer is connected to a collector of a four-layer semiconductor device, the base electrode of which is coupled to a signalling device and the anode of which is connected via an RC-network to a common resistor . . . .

3,740,652

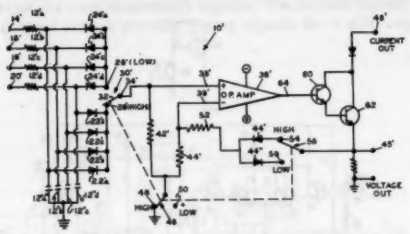
SIGNAL SELECTOR CIRCUIT

Willis R. Burgener, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Nov. 17, 1971, Ser. No. 199,688
Int. Cl. H03k *17/74*, *19/30*
U.S. Cl. 328—137 3 Claims

Described herein is an analog signal selector circuit including an input circuit comprising two arrays of semiconductor diodes, all having substantially identical forward-bias characteristics, and an input circuit comprising a noninverting operational amplifier having a feedback loop, in which is operatively connected a forward-biased semi-conductor diode having characteristics matched to those of the two diode arrays. The arrays are connected to input terminals to which discrete analog input signals (DC) are applied. Selective actuation of the diode arrays results in the highest or lowest of the input

signals being selected and applied to the operational amplifier, the output of which precisely reproduces the selected input



signal, notwithstanding variations in the electrical characteristics of the array diodes as a result of temperature changes.

3,740,653

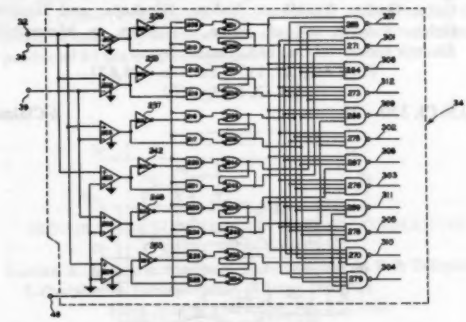
THREE WIRE DIGITAL SYNCHRONIZER

John C. Strole, Dumont, N.J.; Laszlo I. Szerenyi, Frederick, Md., and Harold Moreines, Springfield, N.J., assignors to The Bendix Corporation, Teterboro, N.J.

Division of Ser. No. 738,045, June 18, 1968, Pat. No. 3,629,711. This application Dec. 21, 1970, Ser. No. 100,501

Int. Cl. H03k *17/00*

U.S. Cl. 328—150 **2 Claims**



A three-wire digital synchronizer for use in an aircraft for synchronizing flight data to prevent an abrupt change in aircraft attitude when switching from manual to automatic control. Converting means are provided for converting the intermediate output of a three-wire signal device, such as a synchro, to pulses related in quantity to the actual flight of the aircraft. A counter/register counts the pulses and applies the count to a register until control of the aircraft is switched from manual to automatic control whereupon the count present in the register is locked in but the count in the counter/register continues to change in accordance with the flight data. A subtractor determines the difference in count contained in the counter/register and the register and the difference is used to automatically correct flight of the aircraft.

3,740,654

SIGNAL CONDITIONING CIRCUIT

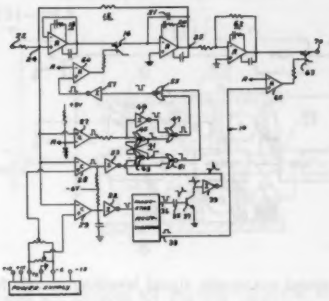
Dennis R. Rossbach, and Dong G. Kim, both of Dayton, Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Mar. 7, 1972, Ser. No. 232,490

Int. Cl. H03k *5/153, 5/18, 17/30*

U.S. Cl. 328—151 **3 Claims**

A pulse conditioning circuit having a two-stage feedback amplifier with a bipolar switch between the stages. A logic circuit samples the signal at the summing junction of the feedback amplifier and closes the switch each time the summing junction exceeds a predetermined voltage level. Another portion of the logic circuit closes the switch each time the summing junction exceeds a predetermined negative voltage. A monostable multivibrator, responsive to the summing voltage exceeding a second negative level, provides an output at



the level of the sample and hold at that time. The logic circuit has a nor-gate flip-flop which flips one way when the summing voltage exceeds the predetermined positive level and acts to delay the operation of the switch, for a negative voltage of the summing junction, until the monostable circuit has had time to operate.

3,740,655

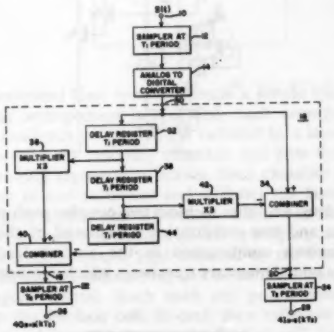
DIGITAL GENERATION OF QUADRATURE SAMPLES

Frank R. Dickey, Jr., Dewitt, N.Y., assignor to General Electric Company, Syracuse, N.Y.

Filed Nov. 24, 1971, Ser. No. 201,689

Int. Cl. H03k *5/00*

U.S. Cl. 328—166 **7 Claims**



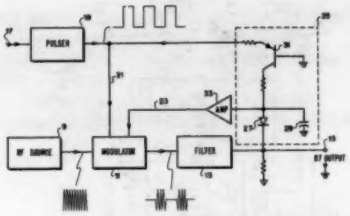
A method and apparatus for generating digitized quadrature samples which approximate the sampled complex envelope of an input waveform by digitally sampling the input signal and applying the resultant digital samples to a digital processing system to obtain pairs of quadrature samples of the input signal. The input digital samples are digitally combined, delayed, and multiplied by the digital processor to form the quadrature samples. An alternative method and apparatus takes digital samples from a plurality of input signals, applies the digital samples to an alternative form of digital processor, and generates multiplexed quadrature samples of the input signal.

3,740,656

PULSE MODULATED SIGNAL DETECTOR

Russell B. Riley, Portola Valley, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jan. 3, 1972, Ser. No. 214,935
Int. Cl. H03k 9/00
U.S. Cl. 329—104 2 Claims



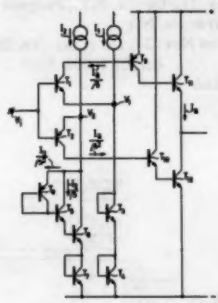
An improved automatic signal levelling circuit for pulsed radio frequency (RF) signals includes a sampling detector to eliminate distortion of the pulse-modulated RF signal.

3,740,657

TRANSISTOR PUSH-PULL AMPLIFIER

Poothathamby Tharmaratnam, Mollenhutseweg, Nijmegen, Netherlands, assignor to U.S. Philips, New York, N.Y.

Filed Apr. 1, 1971, Ser. No. 130,187
Claims priority, application Netherlands, June 13, 1970, 7008685
Int. Cl. H03f 3/26
U.S. Cl. 330—15 2 Claims



A transistor amplifier includes two coupled push-pull amplifier stages and bias stabilization is achieved by the use of a diode-transistor combination in the emitter leads of the respective complementary transistors which comprise the first stage.

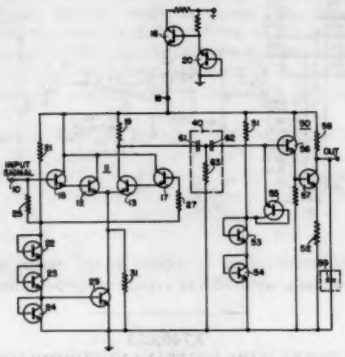
3,740,658

TEMPERATURE COMPENSATED AMPLIFYING CIRCUIT

Robert O. Loving, Jr., Streamwood, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Mar. 3, 1970, Ser. No. 16,156
Int. Cl. H03f 1/32
U.S. Cl. 330—23 7 Claims

An integrated circuit differential amplifier incorporates dual current sources having opposite temperature coefficients to compensate the operation of the differential amplifier for variations in ambient temperature. The output of the differential amplifier is applied through a coupling network to a peak-to-peak amplifying detector subject to input impedance variations, with the coupling network including an impedance connected in parallel with the input impedance of the detector circuit and of smaller value.

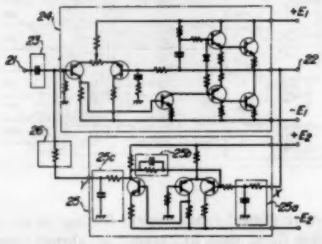


3,740,659

AC AMPLIFIER SYSTEM

Hiroshi Matsushima, Osaka; Ichiro Arimura, Kyoto; Hiroshi Goto, Osaka; Yoshikazu Nakao, Hirakata, and Hazime Oziro, Takeda, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Aug. 27, 1971, Ser. No. 175,621
Int. Cl. H03g 3/30
U.S. Cl. 330—25 6 Claims



An AC amplifier system which comprises an all-stage direct coupling type AC amplifier and a negative feedback circuit connected across the all-stage direct coupling type AC amplifier which includes a DC amplifier connected to the output side of the AC amplifier and designed such that the drift and offset involved therein are extremely small compared to that of the AC amplifier, the DC amplifier having a voltage amplification degree greater than unity for a DC and super-low frequency range, the output of the DC amplifier being coupled to the input side of the AC amplifier for the negative feedback of part of the output of the AC amplifier, thereby greatly reducing the drift and offset of the AC amplifier system.

3,740,660

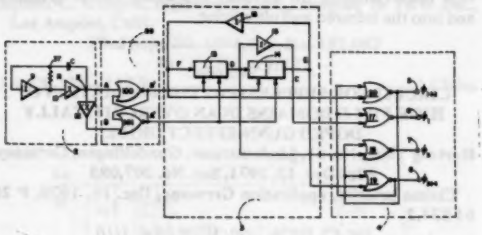
MULTIPLE PHASE CLOCK GENERATOR CIRCUIT WITH CONTROL CIRCUIT

Thomas J. Davies, Jr., Anaheim, Calif., assignor to North American Rockwell Corporation, El Segundo, Calif.

Filed May 27, 1971, Ser. No. 147,555
Int. Cl. H03b 5/20, 19/12; H03k 23/08
U.S. Cl. 331—45 11 Claims

A clock signal generating circuit including an oscillator circuit for supplying complementary square wave signals. A con-

trol circuit connected to the oscillator circuit for receiving the square wave signals and for, providing phase inversion and ordering of the signals in order to prevent phase overlap between the complementary signals. The output signals from the control circuit provide gating signals for a shift register.



Output signals from the shift register are provided as input signals to output logic gates for generating multiple phase output signals. The output logic gates receive feedback signals from certain of the output logic gates for synchronizing the phase relationship between the multiple phase clock signals produced by the output logic gates.

3,740,661

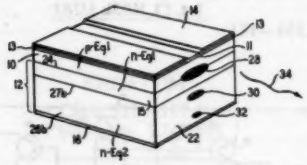
MINOR LOBE SUPPRESSION IN SEMICONDUCTOR INJECTION LASERS

Lucian A. D'Asaro, Madison, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 6, 1969, Ser. No. 831,003

Int. Cl. H01s *3/00*

U.S. Cl. 331—94.5 C **14 Claims**



The minor lobes present in the intensity profile of a semiconductor injection laser are suppressed by an absorbing region located at and beyond the plane of minimum intensity between the major lobe and the first minor lobe. The absorbing region illustratively comprises an n^+-region located in the n-side of the p-n junction or alternatively a narrower band gap region located in the n-side. The use of such absorbing regions results in substantially a Gaussian intensity profile.

3,740,662

LASER DISCHARGE TUBE

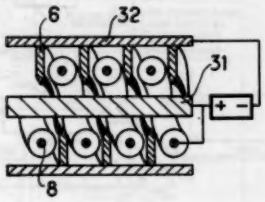
Jean-Claude Farcy, Saint-Michel-sur-Orge; Roger Dumanchin, Orsay, and Jean Rocca-Serra, Paris, all of France, assignors to Compagnie Generale D'Electricite, Paris, France

Filed Mar. 17, 1971, Ser. No. 125,037

Claims priority, application France, Mar. 23, 1970, 7010379

Int. Cl. H01s *3/09*, *3/02*, *3/22*

U.S. Cl. 331—94.5 **18 Claims**



Disclosed are devices for causing electrical discharges in gases. The devices are characterized by the fact that the cathode includes sharp edged protuberances.

3,740,663

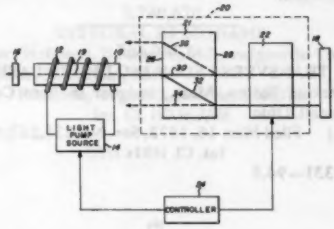
Q-SWITCHED LASER SYSTEM

Keimpe Andringa, Sherborn, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Dec. 21, 1970, Ser. No. 99,857

Int. Cl. H01s *3/11*

U.S. Cl. 331—94.5 **7 Claims**

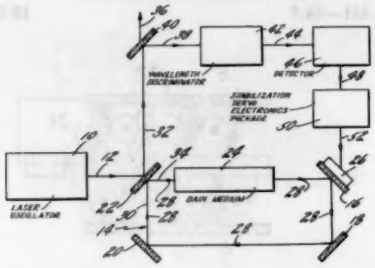


A Q-switched laser system wherein a simple electrooptical switching arrangement is provided, such arrangement permitting randomly polarized light radiated by a laser crystal to resonate within a resonant chamber and pass through such crystal during regenerative action. Such chamber is bounded by a pair of end reflectors and includes the laser crystal, a birefringent crystal and a Pockels cell. When the resonant chamber is in a low Q condition, during a light pumping cycle, the randomly polarized light radiated by the laser crystal is separated into an ordinary ray and an extraordinary ray by the birefringent crystal. Each such ray passes simultaneously through the Pockels cell, is each then reflected by an end reflector and repasses through the Pockels cell; however, during this low Q condition the Pockels cell is placed in a condition such that the electric field of each such ray is rotated 90° after repassage through the Pockels cell. Each ray, having had its electric field so rotated, repasses through the birefringent crystal in a direction such that neither such ray passes through the laser crystal. When the resonant chamber is a high Q condition, during the regenerative action, the Pockels cell is placed in a condition such that no rotation results to rays passing therethrough and therefore the ordinary ray and the extraordinary ray combine on repassing through the birefringent material to form randomly polarized light, such light passing through the laser crystal and thereby resonating within the resonant chamber.

3,740,664
HYBRID FREQUENCY STABLE LASER SYSTEM

Robert J. Freiberg, South Windsor, and Carl J. Buczek, Manchester, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Feb. 22, 1972, Ser. No. 228,185
Int. Cl. H01s 3/11
U.S. Cl. 331—94.5 **4 Claims**

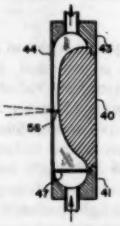


The output beam from a low power, stable frequency laser is injected into a higher power laser having a high gain medium therein to provide an output beam from the over all system which has the characteristics of both high power and stable frequency. The higher power laser is capable of self oscillation when no external stimulating signal is provided. A stable frequency drive signal, having a competitive line, is injected into the high gain medium causing the higher power laser to operate on a line different from the self oscillating line. A wavelength discriminator which samples the system output is used to tune the higher power laser to the wavelength of the stable frequency laser. An analysis of the locking phenomenon is also provided.

3,740,665
TRANSVERSE FLOWING LIQUID LASER

Irving Itzkan, Boston, Mass., assignor to Avco Corporation, Cincinnati, Ohio

Filed Mar. 16, 1972, Ser. No. 235,217
Int. Cl. H01s 3/20
U.S. Cl. 331—94.5 **7 Claims**

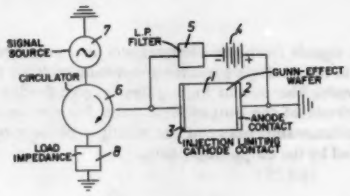


Stimulated emission of radiation (laser action) is produced in materials generally classed as dyes. These dyes may be dissolved in a liquid solution. A quantity of dye in a flowing liquid solution in a module or cavity is pumped or exicted by a laser beam radiating in the ultraviolet region which is focused to a line with a cylindrical lens. A rectangular cross sectional beam of such radiation is produced by a pulsed crossed field nitrogen gas laser. The focused line which is transverse to the beam produced by the exciting laser, and transverse to the direction of the flowing dye lies near the surface of the dye material in the cell, and is substantially as long as the cell is wide. The cell lies within an intensifying optical cavity which may be formed by a 100 percent reflecting mirror and a partially reflecting mirror both perpendicular to the line of focus of the pumping radiation. The stimulated emission from the dye material is characterized by a short pulse width and a little loss of energy between the two lasers. High pulse rates with dye circulation, and high conversion efficiencies of the dye when so pumped, are obtained. For frequency adjustment the optical cavity substitutes for the 100 percent mirror a grating or Littrow prism at the appropriate angle. Further spectral narrowing may be obtained by inserting a tilted Fabry-Perot etalon in the cavity. By using such a frequency tuner and a plurality of dye materials which emit stimulated radiation over different portions of the spectrum, the present device can provide laser radiation for virtually the whole visible spectrum and into the infrared and ultraviolet.

3,740,666
CIRCUIT FOR SUPPRESSING THE FORMATION OF HIGH FIELD DOMAINS IN AN OVERCRITICALLY DOPED GUNN-EFFECT DIODE

Hartwig Thim, No. 61, Lindenstrasse, Gundelfingen, Germany

Filed Dec. 13, 1971, Ser. No. 207,083
Claims priority, application Germany, Dec. 16, 1970, P 20 61 834.2
Int. Cl. H03b 7/00; H03f 3/04, 3/10
U.S. Cl. 331—107 G **5 Claims**

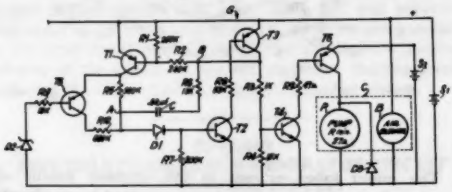


A circuit for suppressing the formation of high field domains in an overcritically doped semiconductor diode made of Gunn-Effect material and having an anode contact (ohmic or Schottky barrier contact) and an injection limiting cathode contact. The circuit can be used as a microwave amplifier or oscillator, for instance in radar or relay systems, at frequencies in the order of up to about 100 GHz.

3,740,667
VARIABLE RELAXATION OSCILLATOR HAVING TIME CONSTANT CIRCUIT DEPENDENT ON POWER SUPPLY VARIATIONS

Fritz Reuter, Esslingen, Neckar, Germany, assignor to J. Eberspacher, Esslingen, Neckar, Germany

Continuation-in-part of Ser. No. 71,192, Sept. 10, 1970, abandoned. This application July 3, 1972, Ser. No. 268,714
Int. Cl. H03k 3/281
U.S. Cl. 331—111 **10 Claims**



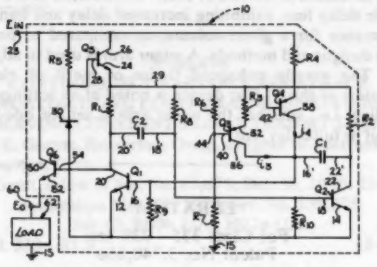
An electronic switching arrangement for an electronic pulse generator, has a condenser and a resistor as pulse frequency determining members, the condenser and the resistor being controlled by an active electronic element such as a first transistor. A series connection of a second transistor and a

second resistor is connected in parallel with the time determining resistor associated with the first transistor and the pulse generator. A Zener diode is connected to the base of the second transistor to provide a predetermined voltage-dependent control of the second transistor.

3,740,668
VARIABLE DUTY-CYCLE AND FREQUENCY OSCILLATOR CIRCUIT

Jagdish C. Chopra, Inglewood, Calif., assignor to TRW Inc., Los Angeles, Calif.

Filed Sept. 20, 1971, Ser. No. 182,062
Int. Cl. H03k 3/282
U.S. Cl. 331—113 R **1 Claim**



An oscillator circuit having a variable duty-cycle and frequency, both of which are determined by the amplitude of an input analog signal. The output of the invented circuit is a waveform having a fixed off-time and a variable on-time, the latter being inversely proportional to the amplitude of the input signal voltage level. The significant characteristic of the output waveform is that in each cycle the product of (i) the output voltage and (ii) the on-time is substantially constant. This output characteristic of the present invention makes it useful in a number of applications, one of which is as a voltage regulator. The invented circuit comprises, in part, (i) a pair of switches, typically transistors, which cyclically and alternately switch on and off, and (ii) a pair of charging capacitors which cyclically and alternately control the switching times of the switches. The fixed time constant with which one of the two charging capacitors is charged determines the fixed off-time of the circuit's output waveform, while the variable charging rate of the second capacitor, a rate which is proportional to the input signal voltage, determines the variable on-time of the output waveform.

ERRATUM

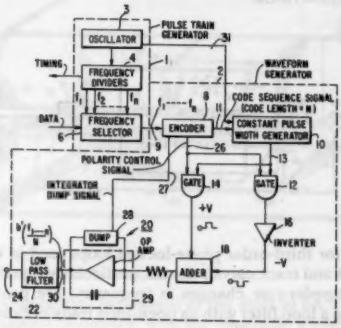
For Class 331—177 R see:
Patent No. 3,740,681

3,740,669
M-ARY FSK DIGITAL MODULATOR

Lawrence Paul Nahay, Cinnaminson, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 1, 1971, Ser. No. 194,429
Int. Cl. H04l 27/12
U.S. Cl. 332—11 R **3 Claims**

A M-ARY digital modulator for phase continuous frequency shift keying a digital data signal includes a pulse train generator for frequency encoding the data signal and a waveform generator for generating by synthetic means an alternating signal the frequency of which is determined by the

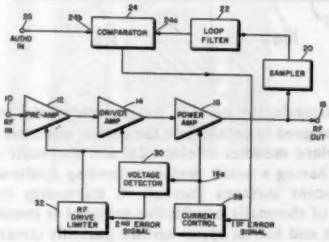


frequency of the pulse train applied thereto and whose shape being derived synthetically is independent of the waveshape of the frequency encoded pulse train.

3,740,670
INTEGRAL RF MODAMP

Gary Robert Hoffman, Baltimore, Md., assignor to The Bendix Corporation, Southfield, Mich.

Filed May 15, 1972, Ser. No. 253,373
Int. Cl. H03c 3/08
U.S. Cl. 332—18 **10 Claims**



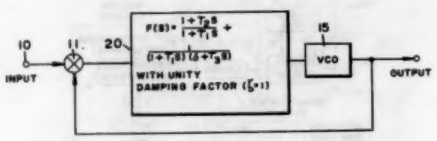
An RE modulator amplifier in a first feedback loop includes a comparator which produces an error signal whenever the audio input differs from a sampled portion of an AM modulated output. The error signal controls the current supply to the last RF amplifier stage. The voltage at the last RF amplifier stage is maintained constant by a second feedback loop which includes a voltage detector which senses this voltage to generate a second error signal which is used to set the drive of first and second RF amplifiers.

3,740,671

FILTER FOR THIRD-ORDER PHASE-LOCKED LOOPS

Robert B. Crow, Sierra Madre, and Robert C. Tausworthe, Pasadena, both of Calif., assignors to National Aeronautics & Space Administration, Washington, D.C.

Filed Apr. 6, 1972, Ser. No. 241,614
Int. Cl. H03h 7/06
U.S. Cl. 333—70 CR 4 Claims



Filters for third-order phase-locked loops used in receivers to acquire and track carrier signals, particularly signals subject to high doppler-rate changes in frequency, are provided by employing a loop filter with an open-loop transfer function

$$F(s)=(1+\tau_2 s/1+\tau_1 s)\pm 1/(1\pm\tau_1 s)(\delta\pm\tau_3 s)$$

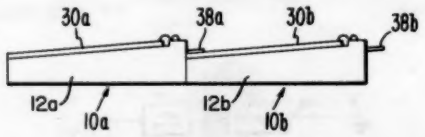
and, for a given set of loop constants, setting the damping factor equal to unity.

3,740,672

SEMICONDUCTOR CARRIER FOR MICROWAVE APPLICATIONS

Adolph Presser, Kendall Park, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 22, 1971, Ser. No. 200,693
Int. Cl. H01p 3/08; H01l 1/16
U.S. Cl. 333—84 M 4 Claims



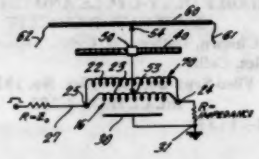
A semiconductor carrier, having microstrip transmission means designed integrally into the carrier structure, includes a ground plane member of electrical and thermally conductive material having a notch therein extending continuously from two adjacent surfaces thereof. A microstrip transmission pedestal of thermally conductive material is mounted within the notch and has its upper surface partially covered with an electrically conductive film that is separated from the ground plane member. A semiconductor element, having at least two electrodes on its surface is mounted on the conductive-film on the upper surface of the pedestal. An input microstrip transmission section is mounted on an upper-surface of the ground plane member and extends to an edge of the notch. One semiconductor element electrode is electrically connected to the ground plane member and another electrode is electrically connected to the input microstrip section. The semiconductor carrier can be cascaded with an identical carrier for amplifier applications wherein the input microstrip transmission section of each carrier is dimensioned to obtain a desired gain over a large frequency band when loaded with an impedance necessary for optimum power output.

3,740,673

BI-FILAR DELAY LINE

Howard Bernstein, New York, N.Y., assignor to Bel Fuse Inc., Jersey City, N.J.

Filed Apr. 27, 1972, Ser. No. 247,963
Int. Cl. H03h 7/34, 7/36
U.S. Cl. 333—29 R 3 Claims



This invention involves a bi-filar wound distributed constant variable delay line, exhibiting increased delay and bandwidth performance for a given volume, as compared to presently known designs and methods. A wiper arm is used to adjust the delay. The greatly enhanced figure of merit of electrical parameters of this bi-filar device is noted at all settings of the delay line, i.e., whether the wiper arm is set for one-fourth, one-half or full delay, etc.

ERRATUM

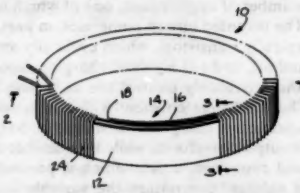
For Class 335—239 see:
Patent No. 3,740,650

3,740,674

SCROLL TRANSDUCER

David E. Parker, Pawcatuck, Conn., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 6, 1972, Ser. No. 215,741
Int. Cl. H01f 21/00
U.S. Cl. 335—215 5 Claims



A free-flooding magnetostrictive scroll transducer and method of making it. The transducer construction allows free-flooding water to fill the scroll interstices, thus eliminating the need for bonding of proximate layers of magnetostrictive material with a resinous material, as considered necessary in making a conventional scroll transducer.

3,740,675

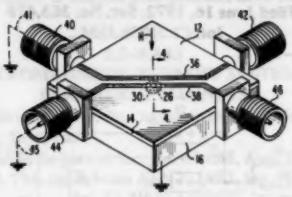
YIG FILTER HAVING A SINGLE SUBSTRATE WITH ALL TRANSMISSION LINE MEANS LOCATED ON A COMMON SURFACE THEREOF

Robert A. Moore, Severna Park, and Theodore M. Nelson, Catonsville, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 17, 1970, Ser. No. 64,361
Int. Cl. H01p 3/08; H03h 7/08
U.S. Cl. 333—73 R 10 Claims

One or more non-overlapping transmission line conductors fabricated on one planar surface of a single slab of an electric material mounted on a ground plane. At least one YIG resona-

tor element is located in a cavity formed in the surface of the substrate facing the ground plane. The YIG resonator element, moreover, is positioned in close proximity to said one or more transmission line conductors a selected distance below the outer surface of the substrate and below the transmission line circuitry.



3,740,676

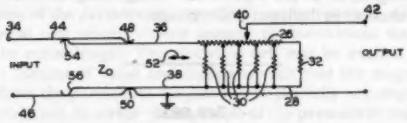
CONTINUOUSLY VARIABLE RESISTANCE ATTENUATOR USING LOSSY TRANSMISSION LINE AND HAVING CONSTANT SIGNAL TRANSIT TIME

Valdis E. Garuts, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Continuation of Ser. No. 85,678, Oct. 30, 1970. This application Mar. 29, 1972, Ser. No. 239,375

Int. Cl. H03h *7/26*; **H01p** *1/22*

U.S. Cl. 333—81 A **15 Claims**



A continuously variable resistance attenuator is described in which the signal conductor of a distortionless lossy transmission line is employed as an attenuation resistance uniformly distributed along such line, and the connection of an output contact is moved along such signal conductor to change the attenuator setting. The transmission line has a plurality of separate shunt resistors of equal value extending between the signal conductor and the ground conductor of the line and uniformly distributed along the line to provide a lossy line of uniform characteristic impedance. The input end of such lossy line is connected to a non-lossy line of the same characteristic impedance, and its other end is terminated in a termination resistor equal to such characteristic impedance. In one embodiment, the lossy transmission line is moved relative to a fixed input contact and a fixed output contact to provide a constant transit time for the signal to pass through the attenuator, due to the fixed distance between such contacts and to reduce the size of the contacts for improved high frequency response. The input contact is provided by a fixed portion of the non-lossy line which engages its movable portion attached to the lossy line to provide a transmission line stretcher of variable length.

3,740,677

RESONANT CAVITY FILTER TEMPERATURE COMPENSATION

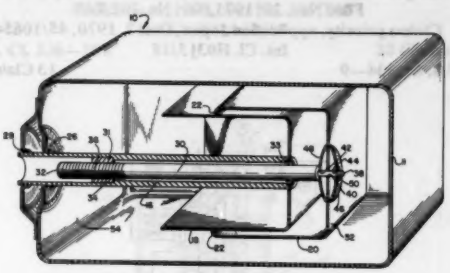
Richard S. Kommrusch, Hoffman Estates, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Nov. 5, 1971, Ser. No. 196,150

Int. Cl. H01p *1/30, 7/04*

U.S. Cl. 333—82 BT **9 Claims**

Resonant cavity filter having temperature compensation provided by complimentary cupped bimetallic washers positioned on opposite sides of the plunger of the resonant cavity filter. The washers support the plunger on a shaft which is adjustable within a fixed tube supported by the outer conductor or housing of the cavity. The shaft and support are threaded to provide longitudinal movement of the shaft to set the plunger to the resonant frequency, with the bimetallic washers providing temperature compensation to maintain the resonant frequency of the cavity filter.



3,740,678

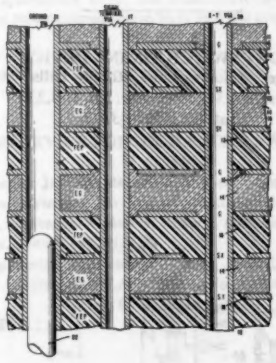
STRIP TRANSMISSION LINE STRUCTURES

Yates M. Hill, Endicott, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 19, 1971, Ser. No. 125,971

Int. Cl. H01p *3/08*

U.S. Cl. 333—84 M **4 Claims**



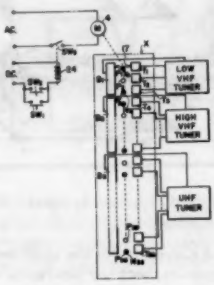
Strip transmission line structures which feature multilayer compositions with FEP (fluorinated ethylene propylene) Teflon* (Trademark, E. I. du Pont de Nemours & Co., Inc.) and Epoxy Glass (EG) as the dielectric materials. The fabrication with FEP material having substantially lower dielectric constant (Er) than commonly used Epoxy Glass enables the provision of high performance transmission lines of simplified construction with superior characteristics designed to meet the microminiaturization of current technological developments and adapted for use in present day computer systems. Retention of some Epoxy-Glass promotes fabrication without a major sacrifice in performance. The strip transmission lines having the more commonly used characteristic impedances (Zo) of 50 to 90 ohms are disclosed.

3,740,679

BROADCAST CHANNEL SELECTING MECHANISM HAVING MOTOR OPERATED ROTARY MEMBER

Sachio Kimura, and Yoshiaki Aoki, both of Tokyo-to, Japan, assignors to Kabushiki Kaisha Kaparu, Tokyo-to, Japan

Filed Nov. 29, 1971, Ser. No. 202,745
Claims priority, application Japan, Dec. 2, 1970, 45/106549
Int. Cl. H03j 5/18
U.S. Cl. 334—9 13 Claims



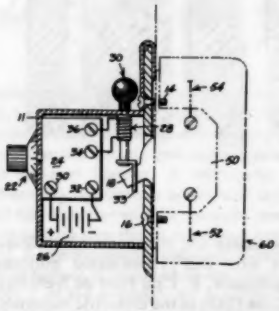
A broadcast channel selecting mechanism for all-channel tuning means, arranged so that, in order to make tuning circuits for the respective receivable channels as the circuit of the applied signals to a variable capacity element is switched by a changeover means, the mechanism is provided with a rotary member rotated by a motor and interlocked with the changeover means and having individual different channel positions established thereon for every different rotational angle assumed by the changeover means, and also provided with selected channel position limiting members which are pre-set to those selected ones of the channels in such a way that only in these pre-set positions, the rotation of the rotary member is automatically halted so that any desired channel can be selected.

3,740,680

LIGHT SWITCH TIMING DEVICE

Carl Schneidinger, 4 Sorrel Lane, Rolling Hills Estates, Calif.

Filed Oct. 12, 1971, Ser. No. 188,235
Int. Cl. H01h 43/02
U.S. Cl. 335—59 1 Claim



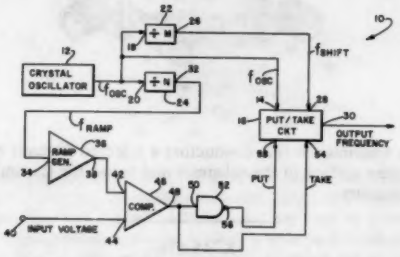
This is an actuating device to be attached to a wall-mounted switch plate for actuating a light switch in a room or other place at a predetermined time interval either for turning such light on or off, or a combination. The device is particularly characterized in that it may mount flush into the wall and in a standard light box receptacle or it may be attached to an existing light switch. It is further characterized by a simple, manual override switch.

3,740,681

VOLTAGE CONTROLLED CRYSTAL OSCILLATOR

Philip L. Epstein, Elizabeth, N.J., assignor to Quindar Electrics, Inc., Springfield, N.J.

Filed June 16, 1972, Ser. No. 263,478
Int. Cl. H03b 3/04
U.S. Cl. 331—177 R 9 Claims



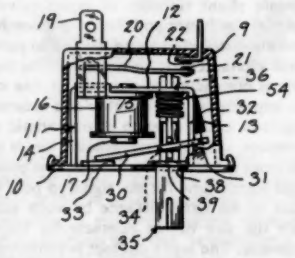
A crystal oscillator frequency signal and a shift frequency signal are selectively combined in a PUT and TAKE circuit comprising digital dividers and logic gating. An output signal from a ramp generator which is derived from the crystal oscillator frequency signal is compared in a comparator with an input D.C. voltage. PUT and TAKE signals generated by the comparator are applied to the PUT and TAKE circuit for selective control thereof. The PUT and TAKE circuit generates a signal having a frequency which is determined by the magnitude of the input D.C. voltage and varies linearly with changes in the input D.C. voltage.

3,740,682

PUSH-TO-START SWITCH

Spencer C. Schantz, New Berlin, Wis., assignor to U.S. Controls Corp., New Berlin, Wis.

Filed Sept. 13, 1971, Ser. No. 179,697
Int. Cl. H01h 3/20
U.S. Cl. 335—186 3 Claims



An armature is fulcrumed near one end and its other end is normally spring-urged in a direction away from the pull of an electromagnet. An actuator is slideably associated with a manually operable plunger for movement axially thereof, and there is inter-engagement so that pushing of the plunger causes movement of the armature toward the electromagnet. The handle of the plunger is square to coact non-rotatably with a square opening in the front plate and the portion of the handle that passes through the front plate has tapered wedges on all four sides. Before the armature engages the core, the actuator causes closing of contacts in an electric circuit to energize the coil so that the armature thereafter holds the actuator in contact-closing position, there being spring means for returning the plunger to starting position while the actuator is

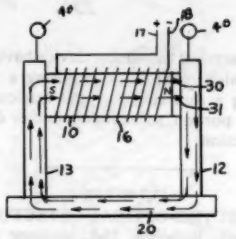
thus held, and there being means between the armature and actuator for returning the actuator to starting position when the coil is de-energized. A permanent magnet is positioned to lock the armature in the released position after the coil is de-energized.

3,740,683

ELECTROMAGNETIC TURNOFF SYSTEM FOR PERMANENT MAGNETS

William H. Benson, Erie, Pa., assignor to Eriez Manufacturing Company, Erie, Pa.

Continuation-in-part of Ser. No. 64,685, Aug. 18, 1970, abandoned. This application Apr. 7, 1972, Ser. No. 241,974
Int. Cl. H01f 13/00
U.S. Cl. 335—284 4 Claims



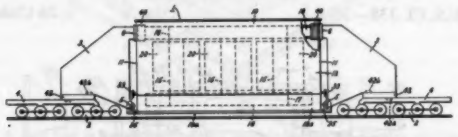
A magnetic circuit made of a permanent magnet of high coercivity material, for example, barium ferrite ceramic material having a coercive force sufficiently high that the domains of the permanent magnet will not be reversed, and an electrical coil wound closely around the permanent magnet over its entire length. The electrical coil may be excited by a direct current of value and direction such that the magnetic field from the permanent magnet will be partially or completely neutralized, however, the domains of the permanent magnet will not be reversed and when the current in the coil is reversed from the first condition, the strength of the magnet becomes equal to the combined magnetic field from the permanent magnet and the magnetic field from the coil. This magnetic circuit is particularly useful for use in lifting magnets, although it is also applicable to magnets used for separating, holding, or otherwise exerting an external magnetic influence.

3,740,684

TRANSPORT VEHICLE FOR LARGE ENCLOSED ELECTRIC INDUCTION APPARATUS

Russell K. Niederjohn, Pittsfield, and Stanley H. Wilk, Dalton, both of Mass., assignors to General Electric Company

Filed May 1, 1972, Ser. No. 249,106
Int. Cl. H01f 15/02, 27/02
U.S. Cl. 336—65 7 Claims



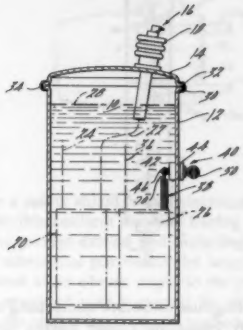
A composite transport vehicle comprises a large enclosed electric induction apparatus supported between bell crank end frames. The end frames carried on separate wheel trucks and pivoted to opposite lower ends of the apparatus casing. Tensile stress between the end frame pivots is transferred to the casing base and a transverse end wall rib by vertical bearing brackets therebetween; compressive stress at opposite upper ends of the casing is transferred to the internal magnetic core clamps through internal blocking between core and casing.

3,740,685

TRANSFORMER WITH CONNECTOR AND METHOD OF ASSEMBLY

John L. Fisher, Lexington, Ky., assignor to Kuhlman Corporation, Troy, Mich.

Filed Nov. 4, 1971, Ser. No. 195,748
Int. Cl. H01f 15/10
U.S. Cl. 336—192 22 Claims



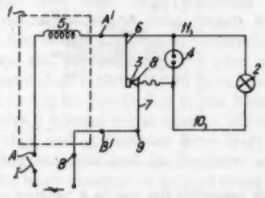
A connector assembly for the low voltage, aluminum, output conductors of a transformer which includes a copper stud forming the through connection from the interior of a transformer casing to the external connector. The low voltage leads from the transformer assembly are preferably formed of aluminum and are attached to the copper stud by means of a concentrically grooved brass washer which is forced into the face of dead-soft aluminum strip by means of a compression nut. The electrical path for the connector assembly includes the dead-soft aluminum strip, the concentrically grooved brass washer, the brass compression nuts and the copper stud.

3,740,686

IGNITION DEVICE FOR HIGH PRESSURE DISCHARGE LAMPS

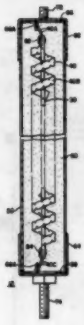
Georges Roger Jarrige, deceased, late of Bagneux, France (by Jeannine Germaine Jarrige, administratrix), and Dat Nhiep Nguyen, Chatenay-Malabry, France, assignors to ITT Industries, Inc., New York, N.Y.

Claims priority, application France, June 25, 1970, 7023616
Filed June 7, 1971, Ser. No. 150,481
Int. Cl. H01h 61/00
U.S. Cl. 337—22 1 Claim



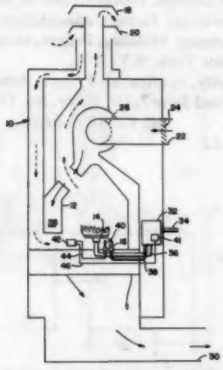
This is an ignition device for a high pressure Mercury or Sodium Discharge Lamp. The device consists of a thermal switch which applies the starting voltage to the lamp after the switch heats up. The thermal switch is located outside the lamp.

3,740,687
CURRENT LIMITING FUSE
Frank L. Cameron, Irwin, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Feb. 12, 1971, Ser. No. 114,881
Int. Cl. H01h 85/16
U.S. Cl. 337—233 6 Claims



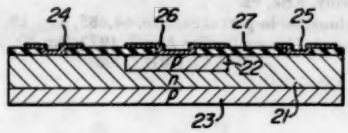
A current limiting fuse structure comprising a generally tubular, electrically insulating casing having terminal means disposed adjacent to the opposite ends thereof. One or more fusible elements is connected between the terminal means. An electrically insulating support member is disposed in the casing of the fuse structure with the ends axially spaced from the respective terminal means. The intermediate portion only of each fusible element is disposed on the associated insulating support member and the end portions extend axially between the ends of the associated support member and the adjacent respective terminal means.

3,740,688
FUSIBLE LINK ASSEMBLY
Harold A. McIntosh, South Pasadena; Gordon K. Slocum, Downey, both of Calif., and Nick J. Koskolos, St. Louis, Mo., assignors to Robertshaw Control Company, Richmond, Va.
Division of Ser. No. 884,063, Dec. 11, 1969, Pat. No. 3,652,195. This application Jan. 13, 1972, Ser. No. 217,509
Int. Cl. H01h 37/76
U.S. Cl. 337—414 8 Claims



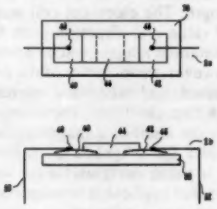
A fusible link assembly for use in a heating control system or the like which includes a pair of conductors joined together by a mass of fusible material such as solder which melts at a predetermined temperature to open a circuit having the conductors therein. The mass of fusible material is contained in a housing or encapsulated and is biased for positively opening the circuitry of the conductors upon melting of the mass of fusible material.

3,740,689
MECHANO-ELECTRICAL TRANSDUCER DEVICE
Akio Yamashita, Ikeda-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Nov. 30, 1971, Ser. No. 203,231
Claims priority, application Japan, Nov. 30, 1970, 45/106525
Int. Cl. G01l 1/22
U.S. Cl. 338—2 6 Claims



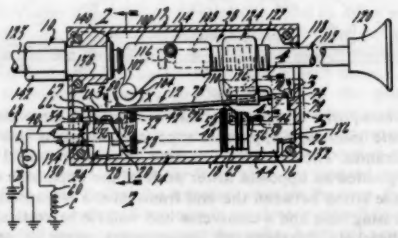
A mechano-electrical transducer device having a high stress sensitivity and high reliability comprising a semiconductor device including a thin single crystal semiconductor wafer having a narrow portion, said semiconductor device having a controllable function.

3,740,690
ELECTRO-OPTICAL DETECTOR
Peter Scharnhorst, Beltsville, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Mar. 14, 1972, Ser. No. 234,627
Int. Cl. H01c 7/08
U.S. Cl. 338—18 17 Claims



An infrared detector comprising an amorphous film of $[A_{1-y}(Pb_{1-x}Sn_x)_y]_z B_{1-z}$ wherein A is Ge or Si, B is Te or Se, X varies from 0 to 1, y varies from 0 to 1 and z varies from 0 to 1 which is contacting glass.

3,740,691
ELECTRIC BRAKE CONTROLLER
Donald D. Brown, Dearborn Heights, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.
Filed June 1, 1971, Ser. No. 148,784
Int. Cl. H01c 13/00
U.S. Cl. 338—39 26 Claims



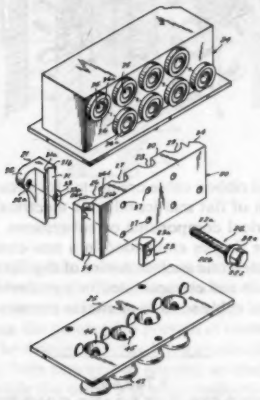
An electric brake controller having a wound resistor and having an elongated electrical contact strip which is supported

at both ends with the strip being engaged with a movable contact member intermediate its support ends whereby the contact strip successively engages the turns on the resistor to vary the current to the brakes.

3,740,692
UNDERGROUND DISTRIBUTION CONNECTOR ASSEMBLY

Ilmar J. Filhaber, Poughkeepsie, N.Y., assignor to Fargo Mfg. Company, Inc., Poughkeepsie, N.Y.

Filed May 10, 1972, Ser. No. 252,321
Int. Cl. H01r *31/08, 11/32*
U.S. Cl. 339—19 **15 Claims**

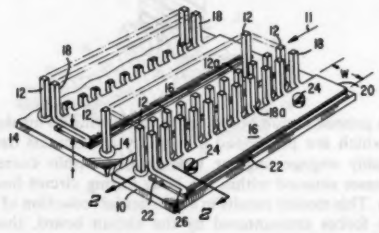


A rugged and compact electrical cable connector assembly for direct burial applications using a limited number of components which can be readily assembled into numerous configurations to provide stable electrical connections for a range of cables and tap lines.

3,740,693
BUS BAR WITH INTEGRAL TERMINALS

John Thomas Gorman, Pennsauken, N.J., assignor to RCA Corporation, New York, N.Y.

Filed May 24, 1971, Ser. No. 146,123
Int. Cl. H01r *31/08*
U.S. Cl. 339—19 **2 Claims**

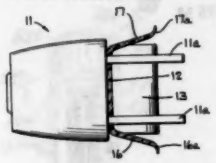


A bus bar is provided having terminals formed from and integral with the bus bar for interconnection to high density arrayed wire wrap terminals. The current carrying cross-sectional area of the bus bar is provided with any preselected width or thickness regardless of the terminal cross-sectional area, the dimensions defining the terminal cross-sectional area being less than either the width or thickness dimensions of the bus bar. Additionally, the width and thickness dimensions of the bus bar are preselected in accordance with the current carrying requirements of the bus bar independently of the terminal cross-section dimensions without affecting the integrity of the connection of the terminals to the bus bar.

3,740,694
SHIELD FOR ELECTRICAL PLUG

Donald M. Fisher, P. O. Box D, Clayton, Ind.

Filed Apr. 19, 1972, Ser. No. 245,580
Int. Cl. H01r *13/44, 13/52*
U.S. Cl. 339—36 **6 Claims**

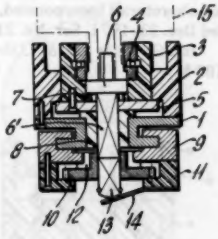


Disclosed is a safety shield for an electrical connector plug formed of a flexible resilient material having a base wall from which the plug prongs extend and including flaps which extend along a substantial portion of the length of the prongs. The flaps extend at an obtuse angle to the plane of the base wall and are provided with a curved lip which engages the receptacle as the plug is inserted and pushed into the receptacle and insures that the flaps are driven outwardly away from the prongs as the plug moves into the receptacle.

3,740,695
CAMERA PHOTOFLASH DEVICE

Tohru Karikawa, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-tu, Japan

Filed Mar. 3, 1971, Ser. No. 120,419
Claims priority, application Japan, June 11, 1970, 45/57691
Int. Cl. G03b *15/05*; H01r *13/62*
U.S. Cl. 339—45 T **7 Claims**



A flash gun and flash cube mounting and coupling mechanism includes a metal shoe mount located on the camera and a film advance rotated drive member is positioned below the shoe and has a square axial bore in which a corresponding metal shaft is slidable and spring urged to a raised position with its top level with that of the bore. A flash cube adapter includes a bottom metal coupler slideably releasably engaging the shoe and an insulator outer body member fixed to the coupling member and an insulator socket member rotatable in the body member. A second metal shaft is rotatable with and slideably engages the socket member and is spring raised and is urged to a depressed condition with the insertion of a flash cube into engagement with the first shaft and the drive member bore. Contacts in the body member are connected to the first shaft and the coupling member. A flash gun includes a tube provided with a coupling releasably engaging the shoe and having a resiliently depressed contact ball urged into engagement with the first shaft.

3,740,696

LOCKING MECHANISM

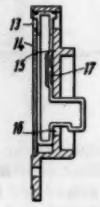
Helmut Schleicher, and Werner Haufe, both of Berlin, Germany, assignors to Schleicher GmbH & Co., Berlin, Germany

Filed June 3, 1971, Ser. No. 149,669

Claims priority, application Germany, June 23, 1970, P 20 32 307.3

Int. Cl. H01r 13/54

U.S. Cl. 339—75 M 4 Claims



A removable locking mechanism for a plug-in connection of two complementary parts contains one part of the connection and a locking element. This element comprises a shoulder which is located on a base and which also has a lug. When assembled in the connection part the element can be caused to slide in a longitudinal direction between two limiting positions by means of locating means actuable from outside the connection. In one position the shoulder, passing through the contact surface of the plug-in connection, causes the lug to engage with the other connection part thereby preventing separation of the plug-in connection in a transverse direction.

3,740,697

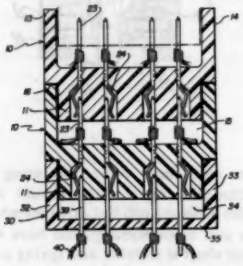
ELECTRICAL CONNECTOR

Darryl J. Van Son, Downers Grove, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Dec. 23, 1971, Ser. No. 211,460

Int. Cl. H01r 13/58, 13/64

U.S. Cl. 339—103 M 8 Claims



A stackable electrical connector having a base portion with vertically disposed walls extending therefrom is disclosed. The walls form a receptable cavity and the base forms a plug which is proportioned such that it may be inserted into the receptable cavity of another connector. The base includes a plurality of pin receiving apertures into which connector pins are disposed. A portion of the pins extend into the cavity to permit electrical connection to another connector which may be plugged into the cavity.

3,740,698

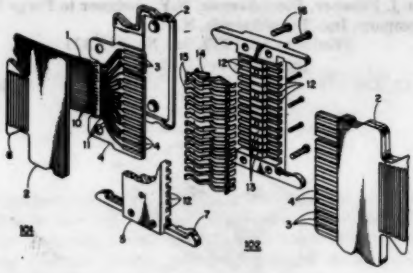
RIBBON CABLE CONNECTOR SYSTEM HAVING STRESS RELIEVING MEANS

Raymond Jerominek, Sherborn, Middlesex, Mass., assignor to Honeywell Information Systems, Waltham, Mass.

Filed May 12, 1971, Ser. No. 142,651

Int. Cl. H05k 1/04; H01r 13/58

U.S. Cl. 339—17 F 8 Claims



An improved ribbon cable connector for accurate and reliable connection of flat multiconductor electrical ribbon cable to other electrical components or subsystems. A plurality of flat conductive fingers embedded in a non-conductive medium are connected one each to a wire of the flat multi-conductor ribbon cable and encapsulated in a protective case which grips the ribbon cable so as to minimize stresses on the electrical connections.

3,740,699

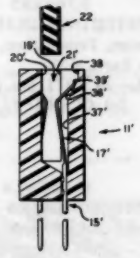
PRINTED CIRCUIT BOARD CONNECTOR

Richard E. Johnson, Sugar Grove, and George D. Powley, Johnsonburg, both of Pa., assignors to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Dec. 2, 1971, Ser. No. 204,225

Int. Cl. H05k 1/07

U.S. Cl. 339—176 MP 4 Claims



A printed circuit board connector having an insulative body in which are positioned a plurality of contacts designed to slidably engage angular indentations within corresponding recesses situated within the body during circuit board insertion. This motion results in a substantial reduction of the insertion forces encountered by the circuit board, these forces common in most connectors of this variety.

3,740,700

SAFETY CONNECTOR

Eugene P. Robertson, 9820 W. 16th Street, Saint Louis Park, Minn.

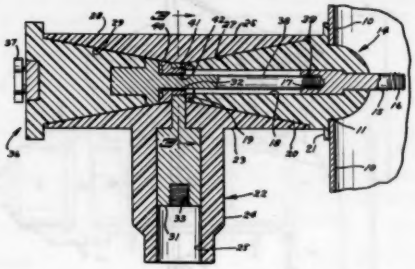
Filed May 11, 1972, Ser. No. 252,372

Int. Cl. H01r 13/50

U.S. Cl. 339—206 R 11 Claims

A safety connector for high energy electrical distribution systems. An output bushing or source plug on a source of

power, such as a transformer has an apertured insulating body having a conductive portion at each end. An apertured T-shaped insulating sleeve includes an intersecting apertured distribution conductor at a position intermediate its ends that is held in place by an apertured bushing. One end of the insulating sleeve receives the output bushing, and the other end receives one or the other of a pair of connect or disconnect plugs.



The connect plug has an axially extending conductive portion that extends through the aperture in the distribution conductor and the apertured body of the output bushing to conductively engage the conductive portion at one end of the output bushing. The disconnect plug has a conductive portion extending axially from one end to another so that one end may be grounded while the other end is in conductive engagement with the aperture in the distribution conductor. The plugs are provided with indicia to show the status of the connector.

3,740,701

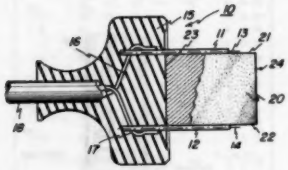
PROTECTIVE CONNECTOR DEVICES

John D. Harnden, Jr., Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 22, 1971, Ser. No. 210,935

Int. Cl. H01c *15/04*

U.S. Cl. 338—220 **7 Claims**



At least one of the elongated electrodes of a protective connector are provided with elongated extensions of metal oxide varistor material. The metal oxide varistor material has an alpha in excess of 10 in the current density range of 10^{-3} to 10^{2} amperes per square centimeter. Accordingly, when the electrodes are disengaged from the electrodes of a mating connector, the metal oxide varistor extension of the protective connector is the last to be disengaged from the electrodes of the mating connector, thereby placing such an extension in series with any discharge currents and thus limiting the magnitude of any voltage developed by the disengagement of the connectors.

3,740,702

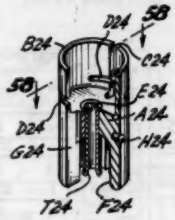
ELECTRICAL WIRE TERMINAL

Forest J. Moray, 1513 Brooks Street, Renton, Wash.

Continuation of Ser. No. 743,424, July 9, 1968, abandoned. This application May 21, 1971, Ser. No. 145,898

Int. Cl. H01r *11/06*

U.S. Cl. 339—223 S **3 Claims**



A connecting body has at one end a wire-engaging socket which is of hole or channel type extending lengthwise of a wire a considerable distance. Such channel can be of the side-opening type or the end-opening type so that a wire can be moved lengthwise or transversely of its length into the channel. Such channel may be of a size to embrace the wire snugly or may be brought into intimate contact with the wire by being closed on it. The body may also carry a collar or band for embracing the insulation encircling the wire. In addition, the body has a cylindrical contact surface either of internal type engageable with a post or of external type engageable in a socket of an electrical component such as a distributor, a spark plug or an ignition coil. The wire may be secured in its socket by soldering, clamping or wedging.

3,740,703

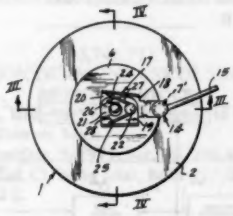
TERMINAL CLAMP

Robert W. Sessions, German Church Road, Hinsdale, Ill.

Filed Nov. 24, 1971, Ser. No. 201,799

Int. Cl. H01r *11/22*

U.S. Cl. 339—255 P **11 Claims**



A terminal clip, particularly for connecting a lead conductor to an electrode structure for making electrical connection to human skin surface and the like, especially a disposable type electrode, in which the electrode structure is provided with a button type male terminal, the clip being constructed to engage such a terminal by relative lateral movement of respective terminal clamping portions thereof transverse to the axis of such a button terminal wherein the clip may be attached to or detached from such a button terminal with slight, if any, pressure being applied to the electrode in the direction of the skin surface to which the electrode may be applied.

3,740,704

SONIC DETECTION METHOD AND APPARATUS

Henry Suter, Hatboro, Pa., assignor to The United States of America as represented by the Secretary of the Navy

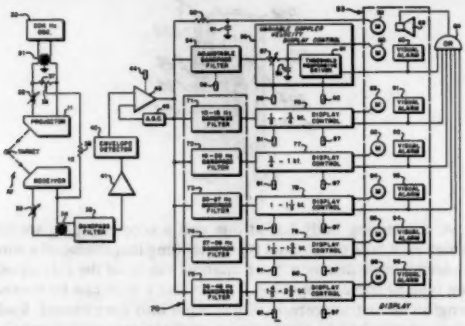
Filed Oct. 28, 1968, Ser. No. 772,068

Int. Cl. G01s *9/66*

U.S. Cl. 340—3 D **19 Claims**

A sonic detection system installed adjacent the upstream side of a bridge for detecting and indicating the intrusion of

swimmers into an adjacent guarded volume of water. The system utilizes the interference signal attributable to multiple signal reflection paths and Doppler frequency shifts therein to enable the detection of both swimmers floating with the primary current and those moving relative to the primary current. The system includes a directional, continuous wave sound projector and a matched directional receiver which are submerged and are arranged in spaced relation normally of



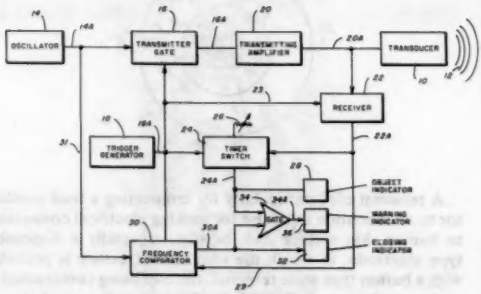
the primary current to have their beam pattern axes intersect at a point upstream of the bridge for establishing the guarded volume. Fixed filters and an adjustable filter are included along with a display which is adjustable for the prevailing ambient conditions to provide indications that the overall response and/or certain received signal frequency spectra have increased above generally randomly varying ambient levels.

3,740,705

SUBMERGED OBJECT WARNING APPARATUS FOR SHIPS

Darrell J. Lowrance, Tulsa, Okla., assignor to Lowrance Electronics Manufacturing Corporation, Tulsa, Okla.

Filed Jan. 17, 1972, Ser. No. 218,146
Int. Cl. G01s 9/68
U.S. Cl. 340—3 R **5 Claims**



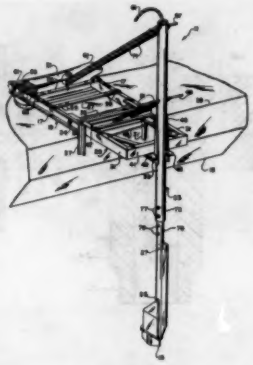
A submerged object warning apparatus for ships having a transmitter for transmitting short bursts of sonic energy at equal time spaced intervals, a receiver for detecting reflections of transmitted sonic energy, a time switch circuit connected to the receiver providing an output signal when reflected sonic energy is received within a preselected time, a frequency comparison circuit connected to the transmitter and receiver providing a signal output when a reflected signal is received of a frequency different from the transmitter frequency, a gate circuit connected to the timed circuit output and the frequency comparison circuit output providing an output signal when a reflected signal is received within the preselected time from an object having relative motion to the transmitter, and a warning device connected to and actuated by the gate circuit output.

3,740,706

TRANSDUCER MOUNTING APPARATUS

Sebastian J. Joseph, Jerseyville, Ill., assignor to Specialized Electronics, Inc., Greenville, Miss.

Filed Sept. 28, 1971, Ser. No. 184,349
Int. Cl. H04b 13/00
U.S. Cl. 340—8 S **6 Claims**



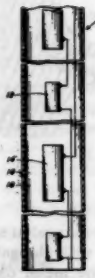
Apparatus for mounting a marine hydrophone transducer or the like on a water-borne vessel. An elongate boom has one end adapted for carrying the transducer and for extension into the water. A base is adapted to be secured to the deck of the vessel adjacent one edge of the deck. The boom is pivotally connected to the base for pivoting movement between a retracted position with the boom out of the water and an extended position with the boom positioning the transducer below the surface of the water. When extended the boom can pivot also in response to being struck.

3,740,707

FAR FIELD SIGNAL SIMULATION UTILIZING CYLINDRICAL ARRAYS

Paul J. O'Brien, and Harold F. Messias, both of Scituate, Mass., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed June 15, 1971, Ser. No. 154,240
Int. Cl. H04b 13/00
U.S. Cl. 340—9 **6 Claims**



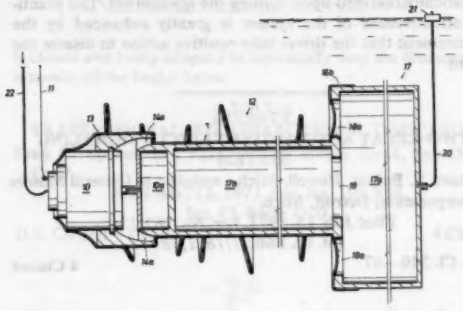
A performance monitoring test set having a cylindrical near field multi-stave transducer array which simulates far field conditions. The multi-stave array is housed in a cylindrical test tank with appropriate shading and phasing of the staves to produce a constant pressure volume in the near field. The test tank system permits testing of a sonar system's range and bearing accuracy, beam uniformity, minimum detectable signal level and transmitter response.

3,740,708

SEISMIC PNEUMATIC ENERGY SOURCE WITH BUBBLE ELIMINATOR AND SIGNAL OSCILLATION ATTENUATOR

William E. Phillips, Houston, Tex., assignor to Texaco, Inc., New York, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,266
Int. Cl. H04b 13/02
U.S. Cl. 340—12 19 Claims



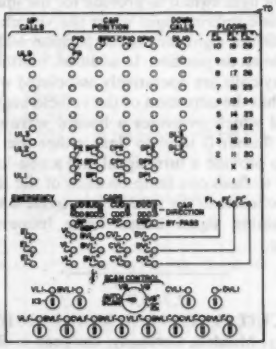
A first chamber having a flexible outer wall for receiving expanding gas from a seismic pneumatic energy source for being inflated has a second chamber connected thereto for receiving the expanding gas from the first chamber, and alternatively, a vent to the atmosphere attached to the second chamber for containing all gas from the pneumatic source for eliminating the usual air bubble when activated underwater and for attenuating subsequent signal secondary oscillation after the desired initial acoustical signal pulse.

3,740,709

MULTI-BANK ELEVATOR SYSTEM HAVING MOTION AND POSITION INDICATOR

Henry C. Savino, Hackensack, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 16, 1968, Ser. No. 721,731
Int. Cl. B66b 3/02
U.S. Cl. 340—21 20 Claims



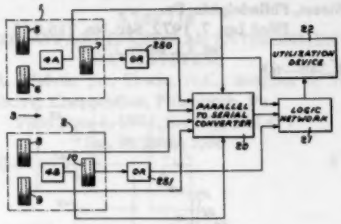
A single panel position and motion indicator is connected successively to each bank of a transportation system having several banks of vehicles, such as elevators, to indicate the status of each bank of the system. Provision is made for overriding the sequential operation of the indicator for the purpose of indicating continuously the status of any one of the banks.

3,740,710

TIRE TREAD DEPTH MEASUREMENT SYSTEM

Arthur Weintraub; Henry A. Kalina, both of Fort Wayne, Ind., and Robert F. Cahill, Westport, Conn., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed June 1, 1971, Ser. No. 148,565
Int. Cl. B60q 1/00
U.S. Cl. 340—52 R 8 Claims



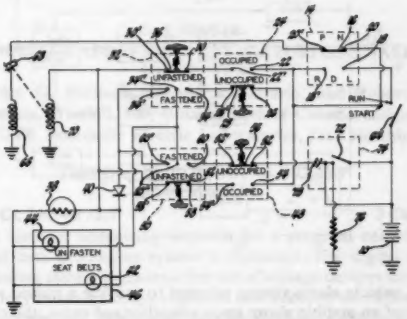
An automatic tire tread depth measurement system for automobiles wherein two support units are located to receive two tires mounted on an axle. Three probe plates, each probe plate containing 20 spring-loaded probe pins in a staggered configuration, are mounted in each of the support plates. The two outer probe plates of each set of three are located so as to respond to the two peripheral tread grooves of each tire if they are of sufficient depth. The center probe plate of each set is positioned to respond to one of the center grooves of each tire if it is of sufficient depth. A two-position switch is connected to each of the probe pins, each switch having one output if the probe with which it is associated is depressed and another output if the probe with which it is associated is not depressed. The simultaneous signal outputs from the switches are multiplexed to provide switching signals in serial form and are provided to a logic network for processing. The logic network provides a "pass" signal if all six tested grooves of the two tires on an axle are satisfactory and a "fail" signal if any one of the grooves is worn more than a predetermined amount.

3,740,711

SYSTEM FOR ENCOURAGING USE OF SEAT BELTS IN A MOTOR VEHICLE

Gregory E. Bell, Roseville, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 9, 1971, Ser. No. 206,403
Int. Cl. B60q 1/00; B60r 21/10
U.S. Cl. 340—52 E 3 Claims



A warning system wherein a condition undesired by the vehicle operator is created if a seat belt is unfastened while the

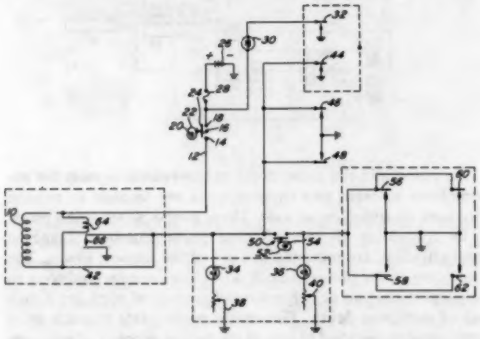
vehicle is in motion or, if a seat belt is fastened after the seat is vacated. In one embodiment the condition is an immediate signal light or sound. In another embodiment the condition is prevention of vehicle start.

3,740,712

BURGLAR ALARM SYSTEM FOR AUTOMOTIVE VEHICLES AND THE LIKE

Domenic Borgese, and Frances Borgese, both of 1620 South 8th Street, Philadelphia, Pa.

Filed Jan. 7, 1972, Ser. No. 216,042
Int. Cl. B60r *25/10*
U.S. Cl. 340—63 **5 Claims**



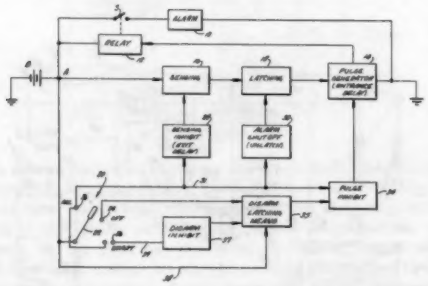
A burglar alarm system for vehicles comprising an alarm device which is actuated by any one of three electrical switches when a key-operated switch inside the vehicle is closed, one of the three switches being operatively connected to the gas refill, a second to the trunk and a third to the hood. Each passenger door is also provided with a switch in the alarm circuit and they are selectively actuated by a second key-operated switch on a fender.

3,740,713

AUTOMOBILE THEFT ALARM WITH IGNITION CONTROLLED AUTOMATIC ARMING MEANS

Rudor M. Teich, 6040 Boulevard East, West New York, N.J.

Continuation-in-part of Ser. No. 86,222, Nov. 2, 1970, Pat. No. 3,671,934. This application Jan. 12, 1972, Ser. No. 217,181
Int. Cl. B60r *25/10*
U.S. Cl. 340—64 **31 Claims**



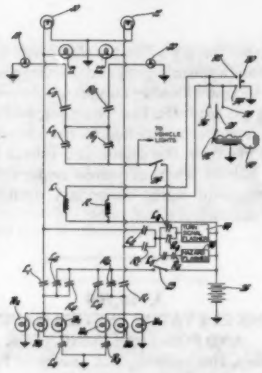
A vehicle alarm system adapted to provide a pulsed actuation of an audible alarm upon unauthorized entry, the circuit thereof being automatically rearmed a predetermined interval after the ignition switch is turned off. The alarm is activated by a pulse generating circuit which is energized by a sensing circuit responsive to the rate of change of voltage at the vehicle battery terminals and is latched in its energized condition until the ignition switch is turned on. In tern, the sensing circuit is rendered ineffective while the ignition switch is on and for a predetermined interval after it is turned off to allow the driver sufficient time to exit the vehicle. The pulse generating circuit is provided with an inherent initial time delay to provide the driver sufficient time to enter the vehicle and turn the ignition switch on. The circuit is disarmed when the ignition switch is turned to the accessory position and held in such position for a predetermined time interval, after which the circuit will be automatically rearmed upon turning the ignition off. The practical effectiveness of the system is greatly enhanced by the requirement that the driver take positive action to disarm the alarm.

3,740,714

TWO-RELAY AUTOMOTIVE VEHICLE SIGNALING SYSTEM

Richard P. Ballou, Howell, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed July 13, 1971, Ser. No. 162,234
Int. Cl. B60q *1/18, 1/38*
U.S. Cl. 340—67 **4 Claims**



A two-relay signaling system for an automotive vehicle in which the contacts of the two relays are operatively associated with the vehicle light switch to provide for the illumination of the left or right cornering light when the vehicle turn signal lever is in the left or right turn signal position and the vehicle light switch is in an on position. In addition, contacts operated by the two relay coils are operatively associated with the vehicle brakes so that the actuation of the vehicle brakes provides a raking signal which overrides a hazard warning signal. A load sensitive flasher is used to flash either the left or right signal lamps to provide a turn signal and a non-load sensitive flasher is used to flash one lamp on each of the left and right front and rear corners of the vehicle to provide a hazard warning, the remaining signal lamps being inoperable during hazard warning.

3,740,715

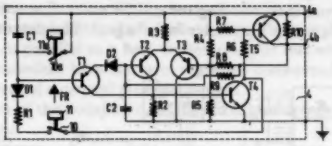
CIRCUIT SYSTEM FOR BRAKE LIGHTS

Istvan Szekessy, Munich, Germany, assignor to Rexroth Und Szekessy Entwicklung GmbH, Munich, Germany

Filed Oct. 18, 1971, Ser. No. 190,071
Claims priority, application Germany, Mar. 15, 1971, P 21 12 391.1; Oct. 19, 1970, P 20 51 245.2
Int. Cl. B60q *1/44*
U.S. Cl. 340—72 **10 Claims**

A circuit system for brake lights comprising a brake light modulator incorporated in the circuit which includes brake

lights, a switch and voltage source, the modulator being made operational for a defined modulation period when the switch

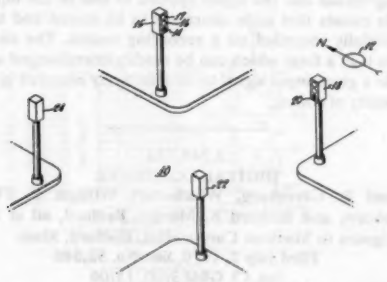


is closed and being adapted to repeatedly vary the illumination intensity of the brake lights.

3,740,716
TRAFFIC SIGNAL WITH DIRECTIONAL INDICATOR

Fred C. Sproul, Sr., 12227 Ranch House Road, San Diego, Calif.

Filed Nov. 12, 1971, Ser. No. 198,332
Int. Cl. B60q *1/00*
U.S. Cl. 340—107 R 4 Claims

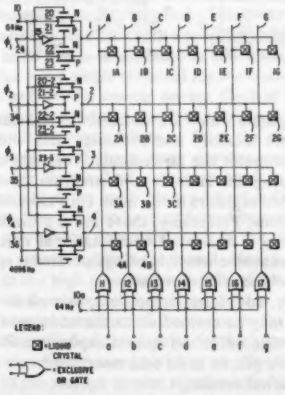


Substantially translucent lenses to be used in combination with standard traffic control signals. Information relating to the direction of vehicles are provided in such a mannr on the lenses that motorists are constrained to view the information.

3,740,717
LIQUID CRYSTAL DISPLAY

Robert Charles Huener, Bound Brook; Stanley Joseph Niemiec, Somerville, and David Keith Morgan, Fleming, all of N.J., assignors to RCA Corporation, Princeton, N.J.

Filed Dec. 16, 1971, Ser. No. 208,813
Int. Cl. G08b *5/36*; G02f *1/28*; H04q *1/00*
U.S. Cl. 340—166 EL 12 Claims

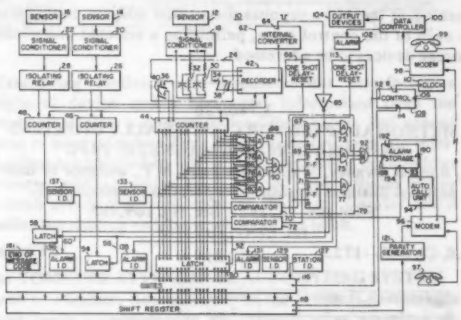


Multiplexed operation of a plurality of liquid crystal numeric indicators is achieved by applying a unipolarity, alternating exciting voltage to the backplate of a selected indicator, applying to all other backplates a unipolarity alternating voltage in a frequency range above that at which light scattering occurs, and applying to each segment of all indicators a unipolarity alternating exciting voltage which may be either in phase with or 180° out-of-phase with the exciting voltage applied to the backplate of the selected indicator.

3,740,718
CONTROL APPARATUS FOR AN ENVIRONMENTAL DATA SYSTEM

Waymon A. Melvin, Jr., Erwin, N.C., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 1, 1971, Ser. No. 148,477
Int. Cl. H04q *5/00*
U.S. Cl. 340—168 S 5 Claims



Control apparatus for an environmental data system of the type which continuously records the output of one or more field located environmental sensors, and which also counts and compares the output with a threshold magnitude. When the threshold magnitude is exceeded, an alarm signal is generated which establishes a communication link with a remote central control station. The control apparatus provides a single complete pulse from a clock at a first output terminal when the communication link is established, to transfer the count to a shift register, and subsequent pulses from the clock are provided at a second output terminal, to clock the data from the shift register.

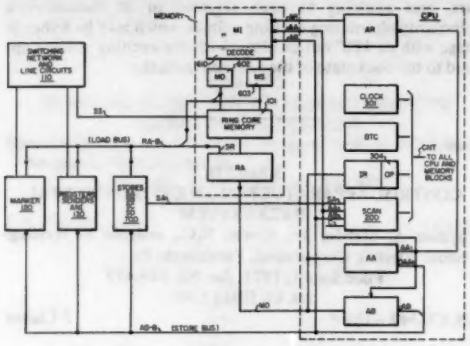
3,740,719
INDIRECT ADDRESSING APPARATUS FOR SMALL COMPUTERS

Beverley G. Hallman, Ottawa 6, Ontario, and Robert M. Thomas, Westhill, 780, Ontario, both of Canada, assignors to GTE Automatic Electric Laboratories, Inc., Northlake, Ill.

Filed Dec. 29, 1970, Ser. No. 102,413
Int. Cl. G06f *3/00*
U.S. Cl. 340—172.5 3 Claims

An indirect addressing network for a program controlled digital data processing system is disclosed. The digital data processing system includes a first set of storage devices used as directory number storage registers, and a second set of storage devices used as equipment number storage registers, all of which are indirectly addressed. The indirect addressing network includes control gates connected to each of the storage devices for partially addressing each storage device. A special gate, having a unique address, is coupled to all of the control

gates for supplying the remaining portion of the address for the storage devices. When the special gate is addressed and



enabled, it therefore supplies a common address component to each of the control gates, permitting a selected one of the storage devices to be addressed.

3,740,720

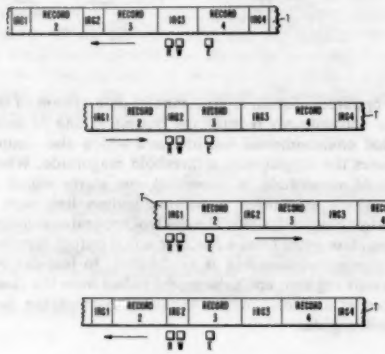
METHOD ADAPTED FOR CONTINUALLY UPDATING INFORMATION ON A MAGNETIC TAPE

C. Barnett Swaney, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 25, 1971, Ser. No. 109,493

Int. Cl. G11b *15/18*

U.S. Cl. 340—172.5 **5 Claims**



A method capable of continually rewriting or updating data into desired record areas delineated by conventional inter-record-gaps by (1) reading the records to be updated, where m = the number of record areas to be updated, (2) moving in a reverse direction or backspacing the tape $m+1$ times so as to position the reading and writing heads over a record area external to the m group of record areas, (3) reading the external record area, and (4) writing into the m group of record areas in order to operate the system in a legitimate read-write mode.

3,740,721

DATA CONVERSION AND RECORDING APPARATUS

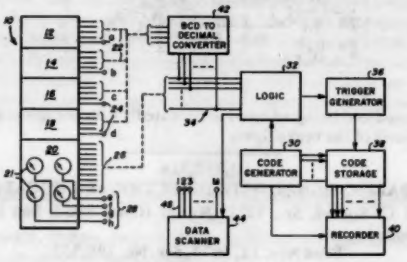
George A. Cline, 716 B Old San Francisco Road, Sunnyvale, Calif.

Continuation of Ser. No. 883,842, Dec. 10, 1969, abandoned. This application July 20, 1971, Ser. No. 164,418

Int. Cl. G06f *1/00*

U.S. Cl. 340—172.5 **13 Claims**

A data conversion and recording apparatus is provided wherein data in either decimal or binary form may be received and converted into a selected code before being recorded. An encoding means in the form of a disc, drum or tape is used to sequentially generate all of the characters in a given code for each input signal, and a coincidence means is provided for selecting from the encoding means the code character which corresponds to the particular input signal. The detection of a



coincidence between the code character appearing on the encoding means and the signal applied to one of the input terminals causes that code character to be stored and be subsequentially recorded on a recording means. The encoding means is of a form which can be readily interchanged so as to enable a given input signal to be selectively encoded in any of a plurality of codes.

3,740,722

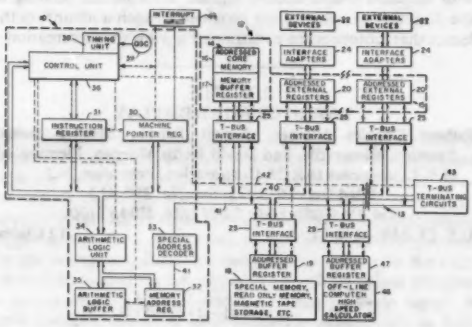
DIGITAL COMPUTER

Michael P. Greenberg, Winchester; William E. Fletcher, Woburn, and Richard E. Morley, Bedford, all of Mass., assignors to Modicon Corporation, Bedford, Mass.

Filed July 2, 1970, Ser. No. 52,046

Int. Cl. G06f *3/00*, *13/06*

U.S. Cl. 340—172.5 **1 Claim**



Hardware registers which are addressed in the same manner as the main core memory and exchange data with external devices. The computer has no dedicated registers used as the accumulator, program counter and program counter save. Rather, addressed registers in the main core memory are used for these functions. Preferably, there are a plurality of each group comprising a dedicated computational machine. The computational machine which is being operated is specified by a dedicated machine pointer register.

Mass memory, additional computers, as well as input and output devices may be connected to the addressed hardware registers to provide unlimited system expansion. Program instructions may be placed in an addressed hardware register in response to external events.

The main core memory provided contains all possible addresses in the ten bit address word of the computer. When an addressed hardware register is connected to the computer, it

becomes responsive to the central processing unit, rather than the identically addressed core position. The core position is reactivated when the hardware register is disabled by events either external or internal to the computer. This dual addressing scheme is controlled by two priority levels.

All address registers and all dedicated machine registers are connected in parallel to a half duplex transfer bus which provides for transfers between any registers connected thereto under control of a central processing unit.

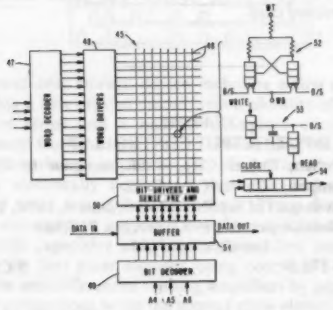
All cycles of the computer are identical and comprise three timing states.

3,740,723

INTEGRAL HIERARCHICAL BINARY STORAGE ELEMENT

William F. Beausoleil; Irving T. Ho, and Wilbur D. Pricer, all of Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 28, 1970, Ser. No. 101,658
Int. Cl. G11c 9/00, 11/34
U.S. Cl. 340—172.5 2 Claims



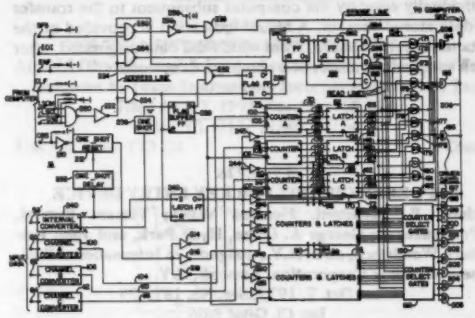
A binary data storage system of a data processing system is comprised of electrically independent storage modules, each module comprised of a matrix of electrically independent storage devices, with each storage device being an integral circuit element comprised of a first matrix of binary storage cells and associated selection circuitry, and a second matrix of binary storage cells and associated selection circuitry. The design of the binary storage cell of the first matrix and associated selection circuitry is such that a large number of storage cells can occupy a unit space but provide relatively slow access to the binary data manifested by the cell. The second matrix of binary storage cells and associated selection circuitry is formed in such a way that a relatively small number of storage cells are provided with a relatively high speed of access to the binary data manifested in the storage cells. Each storage device has a single terminal for the transfer of a single binary bit to or from the storage device. Each of the previously mentioned storage modules also has a single terminal for the transfer of a single binary bit to or from the storage module. All of the terminals of the storage devices are connected in common to the terminal of a storage module. One storage module is provided for each binary bit of a data processing system binary data word to be transferred between the storage system and the central processing unit of the data processing system. The most recently accessed binary data will be manifested in the high speed storage cells of the second matrix such that when address information is sent to the storage system, a large percentage of the requests for access to the storage system will find the data in the high speed portion of each of the storage devices providing an effective access time to the data in the storage system significantly faster than if the access to the data were required to be made to the storage cells of the first matrix.

3,740,724

TRANSLATING METHODS AND APPARATUS

Carl J. Snyder, Raleigh, N.C., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 14, 1971, Ser. No. 143,428
Int. Cl. G06f 3/00
U.S. Cl. 340—172.5 9 Claims



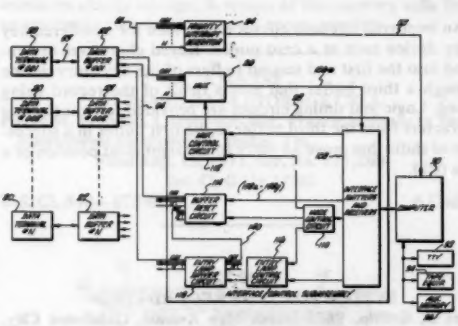
Translating methods and apparatus for interfacing a peripheral device and a computer. Information from the peripheral device is converted into data pulses and spaced timing or interval pulses. Data pulses occurring between interval pulses are counted by a binary counter, and a latch follows the output of the counter. Each interval pulse initiates setting the latch to hold the count, resetting the binary counter, and it enables the reading and the resetting of the latch.

3,740,725

AUTOMATED ATTENDANCE ACCOUNTING SYSTEM

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Carl P. Chapman, La Crescenta; Richard W. Andersen, Los Angeles, and William D. Hodgson, La Crescenta, all of Calif.

Filed June 16, 1971, Ser. No. 153,543
Int. Cl. G06f 3/04
U.S. Cl. 340—172.5 27 Claims



An automated accounting system useful for applying data to a computer from any or all of a multiplicity of data terminals is disclosed. The system essentially includes a preselected number of data terminals which are each adapted to convert data words of decimal form to another form, i.e., binary, usable with the computer. Each data terminal may take the form of a keyboard unit having a number of depressable buttons or switches corresponding to selected data digits and/or function digits. A bank of data buffers, one of which is associated with each data terminal, is provided as a temporary storage. Data from the terminals is applied to the data buffers on a digit by digit basis for transfer via a multiplexer to the computer. A priority interrupt generator is employed to provide the com-

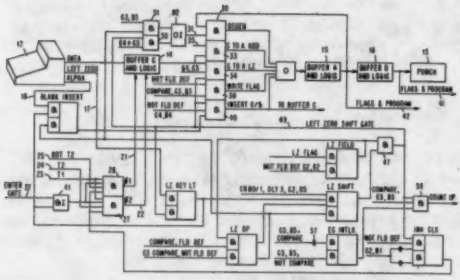
puter with a signal indicating that stored data is available and being held in at least one of the data buffers for transfer to the computer. Upon receipt of such signals, the transfer of data is initiated by the computer controlling the multiplexer to scan the bank of buffers, by groups, in accordance with a programmed sequence. Available data is transferred from a buffer in which it is stored, when the buffer is scanned. The data may be first confirmed for accuracy. Each data buffer is individually reset by the computer subsequent to the transfer of data stored therein. A visual indication is provided at the data terminal keyboard, from which the data originated, after each successful transfer of a complete data word.

3,740,726

LEFT ZERO CIRCUIT FOR KEY ENTRY DEVICE

Richard B. Battistoni, Pleasant Valley; Vincent Ferreri, Poughkeepsie; George A. Gates, Hyde Park, and John Lettieri, Woodstock, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 7, 1971, Ser. No. 187,479
Int. Cl. G06f *3/00*
U.S. Cl. 340—172.5 **12 Claims**



An improved left zero circuit is provided for a buffered key entry device such as a card punch. Keyed characters are entered into the first and second buffers of the key entry device through a third buffer that stores fields of the record being keyed. Logic and timing circuits are provided for transferring characters from the third buffer to the first buffer in a succession of shifts that move an entry to the right most position of a data field.

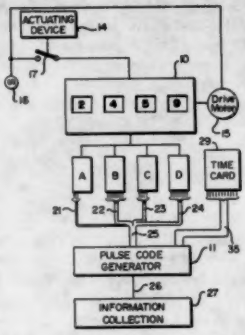
3,740,727

SYSTEM FOR TIME RECORDATION

Gene E. Griffin, 9625 North May Avenue, Oklahoma City, Okla.

Division of Ser. No. 813,121, April 3, 1969, abandoned. This application Dec. 2, 1971, Ser. No. 204,008
Int. Cl. G01d *9/32*; G11b *13/00*
U.S. Cl. 340—172.5 **15 Claims**

This disclosure provides a system for the recordation of time on a data storage means including a continuous record medium. The continuous record medium contemplates the use of punched paper tape, magnetic tape, or any other type of continuous record medium for effecting the entry of time and other information to provide a cost analysis for any type of business operation. The system of this invention includes a time keeping mechanism interfaced with a pulse code generator and a collection information bank which includes the continuous record medium. The pulse code generator translates the time as produced by the time keeping mechanism to a pulse train upon the energizing of actuating means included in



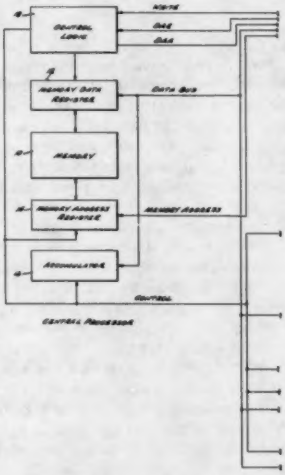
the system. Additional apparatus is provided to prevent entries of two identical bits of information to be sensitively marked on a record card.

3,740,728

INPUT/OUTPUT CONTROLLER

Charles A. Pullen, Culver City, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Continuation-in-part of Ser. No. 43,495, June 4, 1970. This application Jan. 19, 1972, Ser. No. 218,980
Int. Cl. G06f *3/00*
U.S. Cl. 340—172.5 **5 Claims**

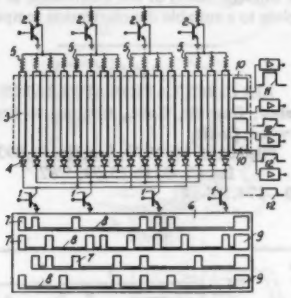


An input/output controller which is substantially independent of the central processor of a computer system for controlling data transfer between the central processor memory and a plurality of input/output channels. The central processor, under program control, sets initial conditions and starts the controller for each input/output channel on which data transfer is to take place. The controller has control of the data transfer with the central processor not involved further until a memory access is required. The initial conditions are retained in the controller until changed by the central processor to enable a block of data to be repetitively transferred.

3,740,729
READ-ONLY MEMORY DEVICE WITH CAPACITIVE COUPLING OF INFORMATION

Gianni Colombo, Sesto Calende, and Giovanni Ippolito, Milan, both of Italy, assignors to AGES S.P.A. - Azienda Generale Elettronica Servomeccanismi, Borgoticino (Prov. Novara), Italy

Filed May 3, 1971, Ser. No. 141,062
Claims priority, application Italy, Oct. 1, 1971, 892908
Int. Cl. G11c *11/24, 17/00*
U.S. Cl. 340—173 CA 1 Claim

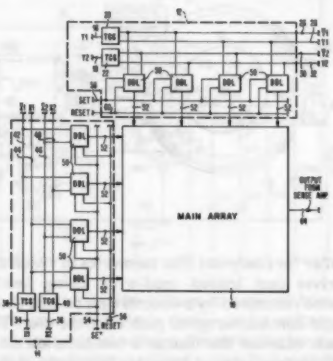


A read-only storage device including a first plate element defining a first printed circuit with a plurality of parallel conductive strips and a number of square conductive areas separated from the strips, and a second plate element defining a second printed circuit with a number of lines and conductive zones electrically connected therewith and a number of square areas connected to the lines. These first and second plate elements are supposed to one another, thereby to define a double capacitive coupling between their conductive portions, the first plate element being connected to addressing circuits and differential reading amplifiers by permanent electrical connections while the second plate element has no electrical connections and may be easily replaced for changing the information stored in the storage device.

3,740,730
LATCHABLE DECODER DRIVER AND MEMORY ARRAY

Irving Tze Ho, Poughkeepsie, and Teh-Sen Jen, Fishkill, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1971, Ser. No. 158,316
Int. Cl. G11c *7/00*
U.S. Cl. 340—173 R 9 Claims

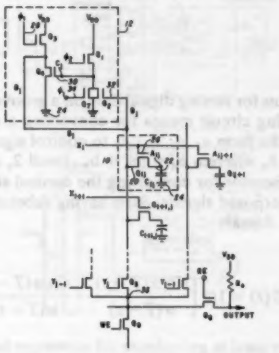


A monolithic memory comprising an array of semiconductor storage cells and a plurality of decoders for accessing information to the storage cells during a given duty cycle. Reduced power consumption is achieved by the application of addressing signals to the decoder input lines for a given time period less than the accessing duty cycle in order to attain full duty cycle activating signals on the decoder output lines for accessing the memory array, and also by virtue of the selected address input lines associated with a selected decoder not drawing current during the given time period.

3,740,731
ONE TRANSISTOR DYNAMIC MEMORY CELL

Atsushi Ohwada, and John A. Arnold, both of Houston, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 2, 1971, Ser. No. 168,324
Int. Cl. G11c *11/40, 11/24*
U.S. Cl. 340—173 CA 3 Claims

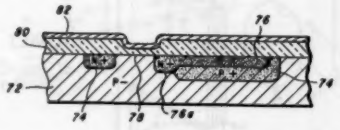


A dynamic memory storage cell requires only one field effect transistor to store binary data. The data is represented in the form of stored charge utilizing the inherent metal-insulator-semiconductor capacitance and P-N junction capacitance at the source node of the field-effect transistor. An extended portion of the source diffusion in combination with overlying thin oxide and metal layers form a capacitor that further enhances charge storage. A matrix of the memory cells form an extremely high density random access memory.

3,740,732
DYNAMIC DATA STORAGE CELL

Pierre M. Frandon, Cagnes-sur-Mer, France, assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 12, 1971, Ser. No. 171,280
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 R 6 Claims

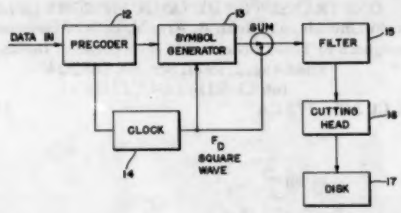


A dynamic data storage cell is disclosed that requires only one insulated gate field effect transistor (IGFET) to store binary data. The drain of the FET is connected to a data input line and data is stored at the source node of the transistor by the inherent capacitance between the source diffusion and the substrate. The capacitance of the source electrode is enhanced by forming a heavily doped layer to underlie a portion of the source diffusion. Using the substrate as circuit ground enables the fabrication of an array of transistors for a random access memory wherein the surface area of the semiconductor chip is minimized.

3,740,733
STORING DIGITAL DATA ON A GROOVED RECORD MEDIUM

Allan Chertok, Cambridge, Mass., assignor to EG & G, Inc., Bedford, Mass.

Division of Ser. No. 788,441, Jan. 2, 1969. This application Nov. 1, 1971, Ser. No. 194,262
Int. Cl. G11b *3/00*; G06j *3/00*; G08c *13/00*
U.S. Cl. 340—173 R **5 Claims**



Apparatus for storing digital data on a grooved record medium including circuit means for converting a series of digital signals of the form $a_1, a_2, \ldots a_n$ to control signals of the form $b_1, b_2, \ldots b_n$ wherein $b_n = [a_n + b_{n-1}] \text{mod } 2$, a staircase type symbol generator for converting the control signals into a series of superposed signals, each having substantially the form in the time domain

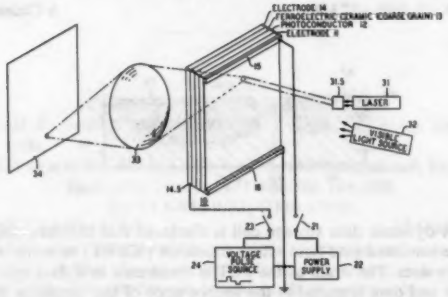
$$S(t) = 1/2\left[\frac{\sin \pi(T+t)}{\pi(T-t)} - \frac{\sin \pi(T-t)}{\pi(T-t)}\right]$$

wherein t = the instantaneous time
and T = the interval between the superposed symbols, a record cutter head and means for driving the record cutter head to inscribe the waveform on a record medium.

3,740,734
COARSE GRAIN POLYCRYSTALLINE FERROELECTRIC CERAMIC OPTICAL MEMORY SYSTEM

Juan Ramon Maldonado, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 15, 1972, Ser. No. 234,965
Int. Cl. G11c *13/04*
U.S. Cl. 340—173 LM **10 Claims**

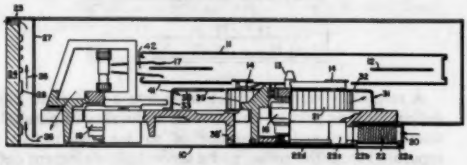


A coarse grain ferroelectric ceramic sandwiched between a pair of transparent electrodes and a photoconductive layer is used as a memory element. Write-in of information to be stored in selected portions of the plate (initially everywhere preset in a thermally depolarized state) is achieved by applying a sequence of two suitable voltage pulses of opposite polarity to the pair of electrodes. Advantageously, this voltage pulse sequence is applied in the presence of selectively scanning optical radiation incident on the photoconductive layer at locations corresponding to the selected portions of the plate, whereby the internal electrical polarization and hence optical scattering property (forward transmissivity) of the plate is modified selectively at those portions. Readout of the resulting pattern of information (internal polarizatio pattern) is performed simply by flooding the plate with visible light and viewing the image intensity pattern of the visible light transmitted by the plate. Erasure of all the information in the plate is accomplished by applying a suitable voltage across the extremities of one (or both) of the electrodes, in order to heat the whole plate to a suitable depolarization temperature.

3,740,735
AIR CIRCULATION APPARATUS

Andrew Gabor, Danville, Calif., assignor to Diablo Systems, Inc., Haywood, Calif.

Filed Sept. 14, 1970, Ser. No. 71,893
Int. Cl. G11b *25/04*, *5/82*
U.S. Cl. 340—174.1 E **7 Claims**

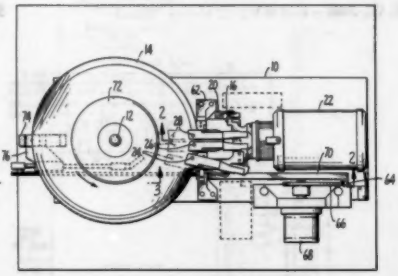


Air circulation apparatus, especially useful within magnetic disk memory units, recirculates a portion of the filtered air within the housing for the unit and disk drive to provide increased air velocity to dislodge dust particles from the disk unit and at the same time reduce the air flow requirements of the cleaning filter.

3,740,736
SPIRAL RECORDING WITH ERROR CHECKING

C. Norman Dion, and Dennis T. Maruyama, both of San Jose, Calif., assignors to Memorex Corporation, Santa Clara, Calif.

Filed Feb. 28, 1972, Ser. No. 229,709
Int. Cl. G11b *27/36*
U.S. Cl. 340—174.1 G **4 Claims**

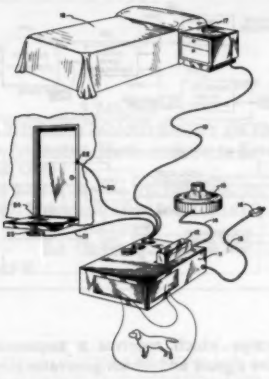


A certifier for computer disc memories in which a voice coil motor drives cam loaded read-write flying heads radially across a disc restrained by a control cam so that the heads follow a single continuous spiral path over the disc. Three read-write heads examine the disc at a test location on the spiral after D.C. erasure to read for extra bits, write data and read for missing bits. Error comparisons are made against a one revolution integration of the output of the data read head. A modulation test compares the one revolution integration of data head output to a part revolution integration of the data head output.

3,740,737
HOME PROTECTION SYSTEM EMPLOYING BARKING DOG TAPE

Margery P. Carleson, 3466 South 27th East, Salt Lake City, Utah

Filed Nov. 26, 1971, Ser. No. 202,365
Int. Cl. G08b 19/00
U.S. Cl. 340—221 R 5 Claims

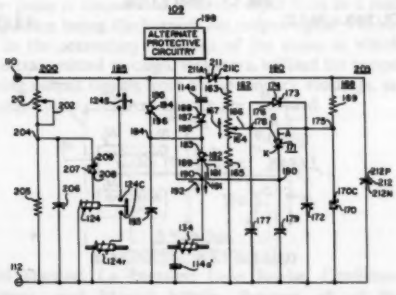


A protection system arranged to provide the periodic and activity stimulated sound of a barking dog. A timer is provided to initiate periodic operation of a recorded dog bark that tends to discourage prowlers from entering a building where a barking dog may be maintained. In addition, one or more remote stations can also be provided to initiate playing of the recorded bark upon the occurrence of specified activity at the station or stations. Such stations typically include a control button positioned near a persons bed, a doorbell, and/or a pressure actuated plate embedded in a doorstep or yard.

3,740,738
UNDERVOLTAGE TRIP CIRCUIT FOR CIRCUIT BREAKER

Nicholas S. Kosanovich, W. Palm Beach, Fla., and Morley P. Langley, Trafford, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 26, 1971, Ser. No. 137,475
Int. Cl. G08b 21/00
U.S. Cl. 340—248 B 22 Claims

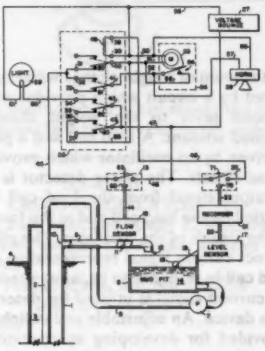


A means for detecting low voltage in a circuit breaker control system comprising a static device and a voltage divider. Upon sensing low control voltage, the static device produces a signal which is applied to a silicon controlled rectifier which then provides a current path for energizing the associated circuit breaker tripping coil from a previously charged capacitor. In addition, a circuit is provided which disables the closing circuit or means of the circuit breaker when an undervoltage condition occurs or is present. Where desired, a capacitive network may be used in conjunction with the static undervoltage detector to delay its operation and to prevent slight fluctuations in voltage from causing the undervoltage detector to actuate a tripping operation of the associated circuit breaker.

3,740,739
WELL MONITORING AND WARNING SYSTEM

Phil H. Griffin, III, and Martin J. Sharki, both of Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

Continuation of Ser. No. 862,215, Sept. 30, 1969, abandoned.
This application Nov. 30, 1971, Ser. No. 203,460
Int. Cl. G08b 19/00
U.S. Cl. 340—239 R 7 Claims

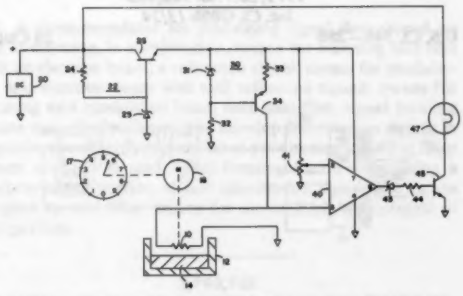


A method and apparatus for monitoring at least two process parameters and giving distinctive warnings when each of the parameters varies beyond the desired limit and a separate and distinctive warning when two or more of the parameters vary beyond desired limits at the same time.

3,740,740
LIQUID CRYOGEN DETECTOR

William C. Milo, Anaheim, Calif., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 12, 1972, Ser. No. 217,179
Int. Cl. G08b 21/00
U.S. Cl. 340—244 R 1 Claim

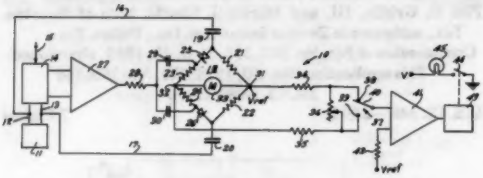


A carbon composition resistor sensor is lowered to a cryogen material which is in its cryogenic state. The current through the sensor is maintained constant by a regulator, and when a sustantial change in the resistance of the carbon sensor occurs, an amplifier having its input connected across the regulator senses the change in the resistance of the regulator and causes a light to go on or off so as to indicate the top level of the cryogenic material.

3,740,741
ALARM SET POINT CONTROL SYSTEM

William H. Jones, Villa Park, Ill., assignor to Eaton Corporation, Cleveland, Ohio

Filed May 26, 1971, Ser. No. 146,870
Int. Cl. G08c 19/00
U.S. Cl. 340—272 4 Claims

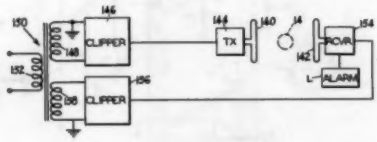


A preset amount of weight change with respect to a load cell is monitored by a circuit which provides an alarm at an adjustable point prior to the weight change reaching the predetermined amount. A load cell and a phase detector circuit are driven by an oscillator which provides a pair of different phase signals. The phase detector is further provided with an output signal from the load cell indicative of the weight carried by the load cell and at the frequency and phase of one of the signals of the oscillator. The phase detector provides a direct current signal representative of weight carried on the load cell in response to its input alternating signals and the direct current signal is utilized for determining operation of an alarm device. An adjustable and switchable set point circuit is provided for developing an operating signal for the alarm device in response to the direct current signal from the phase detector, the switching function being effective to permit the direct current signal to approach a reference signal representative of the predetermined weight change unidirectionally regardless of whether the load cell is being loaded or unloaded.

3,740,742
METHOD AND APPARATUS FOR ACTUATING AN ELECTRIC CIRCUIT

Thomas F. Thompson, 3660 Harlow Road, Eugene, Oreg., and Joseph W. Griffith, 8705 S. W. White Court, Portland, Oreg.

Continuation-in-part of Ser. No. 879,080, Nov. 24, 1969, abandoned, which is a continuation-in-part of Ser. No. 797,053, Feb. 6, 1969, abandoned. This application May 11, 1971, Ser. No. 142,132
Int. Cl. G08b 13/24
U.S. Cl. 340—280 20 Claims

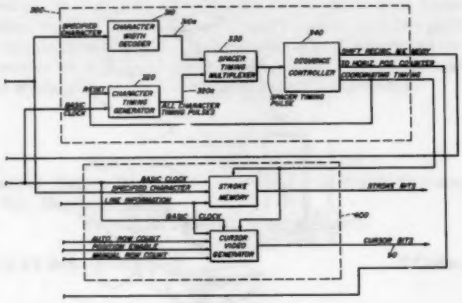


A field of electrostatic, electromagnetic or high frequency radiant energy is provided on a predetermined intermittent cycle in a confined space through which persons are directed. A tuned resonant circuit, concealed on merchandise being carried through the space, is activated by the energy field. During the time interval when the energy field is cut off, the decaying electric signal from the tuned resonant circuit is radiated to a receiver. The received electric signal functions to activate an alarm.

3,740,743
CHARACTER GENERATING APPARATUS FOR TELEVISION TITLING

Stanley N. Baron, Stamford, Conn., assignor to Columbia Broadcasting System, Inc., New York, N.Y.

Filed Mar. 29, 1971, Ser. No. 128,727
Int. Cl. G06f 3/14
U.S. Cl. 340—324 A 15 Claims

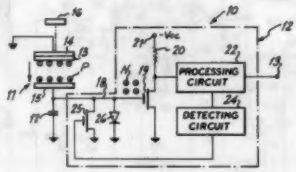


An apparatus which receives a sequence of character representative signals and which generates stroke signals that are suitable for controlling a scanned display to present the sequence of characters on the display with proportional spacing. The system includes a timing generator for generating timing signals which are synchronized with the display scan and a recirculating storage for storing the character-representative signals, reading out specified character-representative signals which correspond to a specified character in the sequence and then restoring the specified character signals. The recirculating storage is shifted in response to spacer timing signals generated by a spacer detector which is responsive to the specified character signals and includes means for generating spacer timing signals that are a function of the width of the specified character. A stroke generator which is responsive to the timing signals and the spacer timing signals generates a stroke of the specified character.

3,740,744
DATA INPUT KEY APPARATUS

Yasuo Nakada, Tokyo, and Yoshinori Tanaka, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Feb. 2, 1972, Ser. No. 222,739
Claims priority, application Japan, Feb. 4, 1971, 46/4332
Int. Cl. H04l 15/06
U.S. Cl. 340—365 C 11 Claims



A data input device for an electronic computer or calculator has an electro-mechanical transducer, preferably comprised of an electret and an electrode confronting each other with a gap therebetween which is narrowed by manual operation of a key, to electrostatically induce an electric charge by which a field effect transistor is controlled for producing an output, and a switch, preferably constituted by a second field effect transistor, for shunting the first mentioned field effect

transistor and thereby removing the controlling electric charge from the latter so that only a single output is obtained from the first field effect transistor for each manual operation of the electro-mechanical transducer. A diode is further preferably connected between the electrode and ground potential and has its polarity arranged to remove the induced charge which remains on such electrode after the shunting operation of the second field effect transistor and the return of the electret and electrode to their normal spacing.

3,740,745

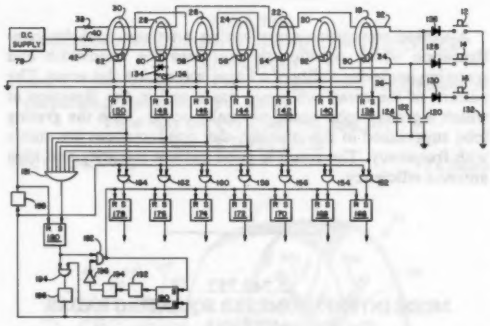
RING CORE KEYBOARD ENTRY DEVICE

Stanley K. Chao, Lexington, Mass., assignor to Eaton Corporation, Cleveland, Ohio

Continuation-in-part of Ser. No. 76,189, Sept. 28, 1970, Pat. No. 3,688,307. This application Jan. 14, 1972, Ser. No. 217,923

Int. Cl. H04q 3/100

U.S. Cl. 340—365 E 6 Claims



A keyboard entry device has ring transformer cores each core having a different combination of electrically conductive input lines threaded therethrough. Each input line is connected to a switch and a capacitor. Each input line is connected to a switch and a capacitor, the capacitor storing charge from a D. C. supply. When the switch is activated a current pulse is transmitted over the input lines as a result of the capacitor being discharged. An output signal will be provided in the secondary windings of the cores in which the pulse is transmitted through. Registers, utilized for temporarily storing output signals from the secondary windings, as well as a unique N-key rollover feature are provided.

3,740,746

MAGNETIC KEYBOARD

Gabriel Dureau, Le Perreux; Leon Roche, Chatillon-sous-Bagneux, and Marcel Villain, Fresnes, all of France, assignors to Compagnie Industrielle Des Telecommunications Cit-Alcatel, Paris, France

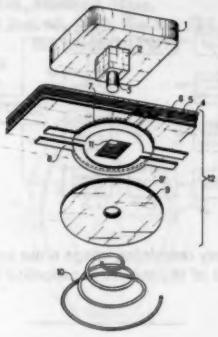
Filed Nov. 30, 1971, Ser. No. 203,228

Claims priority, application France, Nov. 30, 1970, 7043007

Int. Cl. H04q 3/00

U.S. Cl. 340—365 L 12 Claims

Magnetic keyboard transforms the depression of a key to electric signals corresponding to a numerical code, comprising circuits having superimposed coils, magnetically decoupled by a conductive disc placed in the immediate vicinity of the primary circuit. The depression of a key moves the conductive disc away and couples the secondary coil to the primary coil.



3,740,747

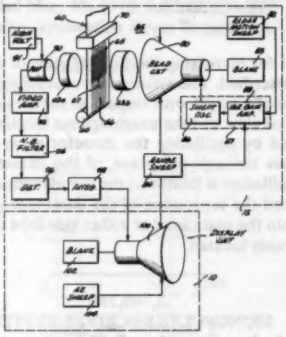
CROSS-CORRELATOR

Harold V. Hance, Palo Alto, and Henry L. McCord, Los Angeles, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Feb. 27, 1964, Ser. No. 348,898

Int. Cl. G01s 9/02

U.S. Cl. 343—5 MM 13 Claims



1. A cross-correlator for processing signal data stored on film comprising, in combination, means for scanning said film with an electron beam; a reference signal; means for modulating said electron beam with said reference signed; means for focusing said modulated beam onto said film; signal forming means operatively disposed to develop information signals in response to energy from said beam penetrating said film; filter means coupled to said signal forming means for passing a predetermined portion of said information signal; and means coupled to said filter means for determining the integral of said portion.

3,740,748

ELECTRONIC IMAGE CANCELLATION FOR DOPPLER RECEIVERS

Eddy Hose, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

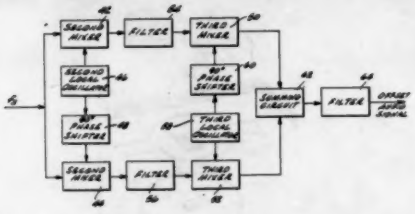
Filed May 31, 1968, Ser. No. 736,927

Int. Cl. G01s 9/44

U.S. Cl. 343—8 12 Claims

A double channel pulsed doppler radar receiver utilizing, in one embodiment, double mixing in each channel in which an

oscillator having quadrature signal outputs is coupled between respective mixers in each channel for each mixing action involved, so that any remaining image noise component appearing at the output of the mixers is cancelled in a summing circuit.

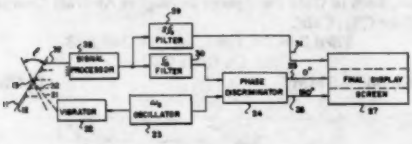


3,740,749

INCREASED FIELD OF VIEW DETECTOR ARRAY

Emanuel Marom, Tel Aviv, Israel, assignor to The Bendix Corporation, Southfield, Mich.

Filed Feb. 22, 1971, Ser. No. 117,535
Int. Cl. G01s *3/16*
U.S. Cl. 343—100 LE **11 Claims**



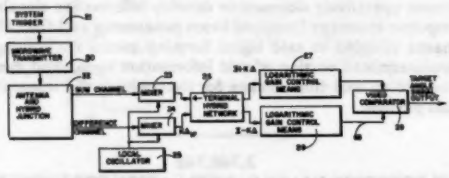
A system for increasing the field of view of an array of detectors is described. The system also unambiguously identifies the location of a target with respect to the array. The increase of the field of view and the unambiguous locating of the target are obtained by oscillating the detector array about an axis which passes through the plane of the detector array. The angle of oscillation is related to the wavelength of the detected radiation and the separation of the detectors so that a target falling within the main lobe or either side lobe is detected and unambiguously located.

3,740,750

MONOPULSE RECEIVER SYSTEM

James A. Moulton, Santa Ana, Calif., assignor to North American Aviation, Los Angeles, Calif.

Filed Aug. 29, 1962, Ser. No. 221,653
Int. Cl. G01s *3/22*
U.S. Cl. 343—119 **16 Claims**



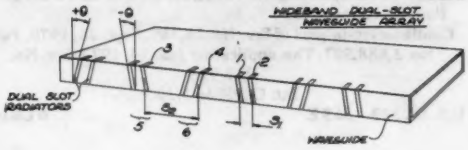
1. In a monopulse receiver system having a depressed antenna and having a first and second signal channel indicative of the microwave output from a first and second one respectively of two coplanar antenna elements, target angle detection means comprising: first and second logarithmic gain means responsively connected to said first and second signal channel respectively for providing an output as a logarithmic function of the amplitude of the respective inputs thereto; and a signal amplitude comparator responsively connected to the outputs of said each of said logarithmic gain control means comprising automatic gain control means including video output means and a logarithmic-shaping feedback network responsively coupled to the output of said video output means.

3,740,751

WIDEBAND DUAL-SLOT WAVEGUIDE ARRAY

Jeffrey T. Nemit, Canoga Park, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed June 19, 1972, Ser. No. 264,033
Int. Cl. H01q *13/10*
U.S. Cl. 343—771 **10 Claims**



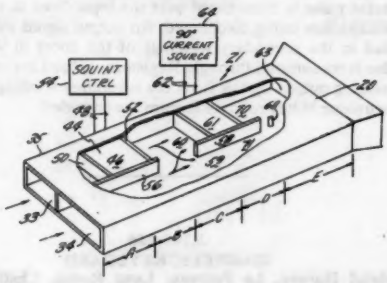
A slotted waveguide array having a unique dual-slot configuration which significantly increases the bandwidth and scanning angle capability of a linear waveguide slot array. The pattern of the array sub-group has a null in the direction at which a grating lobe would normally occur. With the grating lobe suppressed in this manner, slot conductances are stable with frequency. The result is good pattern integrity and high antenna efficiency.

3,740,752

MODE INTERFEROMETER SQUINTING RADAR ANTENNA

Irving I. Goldmacher, Stamford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Jan. 21, 1972, Ser. No. 219,731
Int. Cl. H01q *3/26*
U.S. Cl. 343—781 **10 Claims**



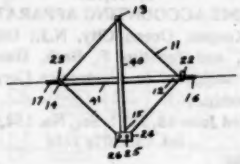
Lateral displacement of the phase center of the electromatic wave feeding a reflector from a feed horn is achieved by interference between a plurality of modes created by combining suitably adjusted and mixed waves from each of two waveguides into a single waveguide which is twice the width of either. The displaced phase center provides a squint angle, off of boresight, to the wave reflected from the reflector.

3,740,753

MULTIBAND QUAD AND LOOP ANTENNA

Wilbert E. Monola, Erie, Pa., assignor to Mini-Products, Inc., Erie, Pa.

Continuation-in-part of Ser. No. 158,424, June 30, 1971. This application Feb. 28, 1972, Ser. No. 229,951
Int. Cl. H01q 11/12
U.S. Cl. 343—744 6 Claims



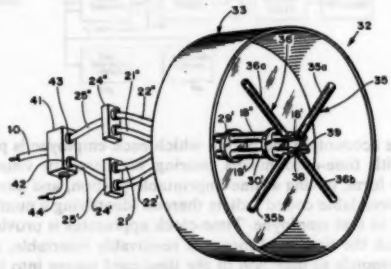
The specification discloses a structure of a single and a dual band antenna utilizing two loading units, each comprising a single inductor and a single capacitor connected in series therewith and mounted 180° apart at the high voltage points of the quad or loop antenna, and with the feed point midway between.

3,740,754

BROADBAND CUP-DIPOLE AND CUP-TURNSTILE ANTENNAS

James J. Epis, Sunnyvale, Calif., assignor to GTE Sylvania Incorporated, Mountain View, Calif.

Filed May 24, 1972, Ser. No. 256,357
Int. Cl. H01q 21/26
U.S. Cl. 343—797 7 Claims



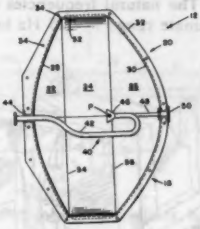
A cup-dipole antenna features two colinear monopole elements mounted close to the plane of the cup mouth or aperture and electrically connected at their inner ends to the outer conductors, respectively, of a pair of coaxial lines whose inner conductors are electrically connected together adjacent the monopole elements. The input ends of these coaxial lines are connected to the output or secondary-winding terminals of an impedance transformer constituting a lumped-circuit component with a secondary winding having an r.f. grounded center tap. The two monopole elements are thereby excited as a center-fed dipole. In addition, a shorting plate electrically interconnects the outer conductors of the coaxial lines between the dipole and the bottom of the cup in order to neutralize adverse effects of mutual coupling between currents flowing on the inside surface of the cup and on the outer conductors of the coaxial lines. In practice, each coaxial line is housed in a rigid pipe to which the outer conductor is electrically connected and which electrically and mechanically supports the associated monopole element. The cup turnstile form of the invention comprises four monopole elements which comprise two such dipoles disposed at right angles to each other with the two pairs of end-connected coaxial feed lines adapted to be energized in phase quadrature to produce a circularly polarized radiation pattern.

3,740,755

MICROWAVE ANTENNA WITH RADOME

Robert J. Grenzeback, c/o Systems Resources Corp., 7 Corporation Way Ext., Medford, Mass.

Filed Jan. 12, 1972, Ser. No. 217,158
Int. Cl. H01q 19/12
U.S. Cl. 343—840 14 Claims



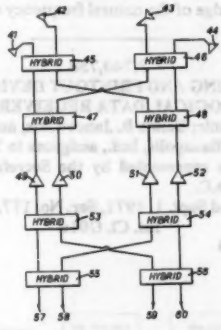
A microwave antenna having a parabolic reflector with a confocal parabolic radome. The coincident foci of the reflector and radome cause reflections from the latter to be incident upon the reflector in the same direction as the energy directly incident thereon from the feed. The antenna is integrally formed in nestable segments each comprising portions of the reflector, the radome and any interconnecting shroud.

3,740,756

SWITCHING SYSTEM FOR PLURAL ANTENNAS CONNECTED TO PLURAL INPUTS

Boleslaw Marian Sosin, Chelmsford, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed Mar. 20, 1972, Ser. No. 236,272
Claims priority, application Great Britain, Mar. 26, 1971, 8,032/71
Int. Cl. H01q 21/00
U.S. Cl. 343—853 6 Claims



Signals having a pre-determined phase relationship are switched to one of four aerials by two pairs of hybrid circuits. The signals are applied to the four inputs of the first pair of hybrid circuits, and the aerials are connected to the outputs of the second pair. Each output of each circuit in the first pair is connected to an input on a different one of the second pair of circuits. A further two pairs of hybrid circuits, similarly interconnected, may be used to derive the required phase relationship from a signal applied to a single input.

3,740,757

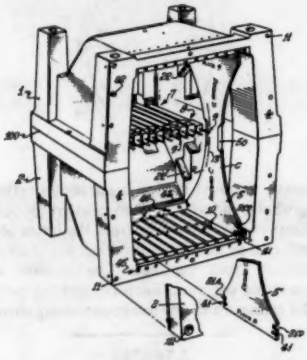
PEAK SHOCK RECORDER

Paul D. Engdahl, 2850 Monterey Avenue, Costa Mesa, Calif.

Filed Dec. 1, 1971, Ser. No. 203,713
Int. Cl. G01d 9/02
U.S. Cl. 346—7 13 Claims

A recording accelerometer of the general type known as a reed gage, for recording the shock spectrum of mechanical

shocks of relatively long rise time, such as earthquakes. A plurality of cantilever reeds, each carrying an inertial mass and a stylus, are mounted in an array. Each stylus is disposed to "scratch" or emboss an arcuate line-like record on a record plate. Each plate has four recording surface locations, two on each side. Mechanical keying means are provided to insure that each plate is in its proper location and orientation, so that there can be no error in identifying the records made by the respective reeds. The natural frequencies of the reeds may cover the approximate range 2 – 25 Hz in one-third-octave



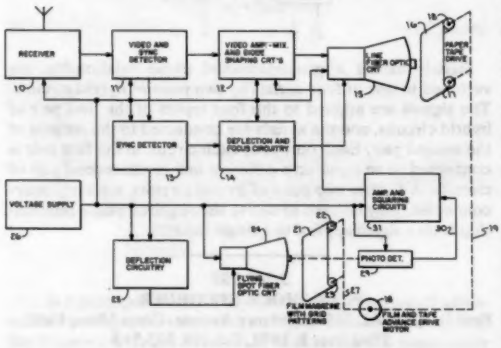
steps. The instrument has no moving parts except the reeds themselves and requires no source of electrical or other power, and so may stand by for many years after installation and still reliably produce a record when a shock incident occurs. The combination of stylus and recording surface is of a novel type which permits identification of the peak excursions of each of the individual oscillations of a stylus on any single trace, so permitting recovery of the entire amplitude vs. time history of its oscillation — the time information being available from knowledge of the natural frequency of the reed.

3,740,758

GRIDDING AND PRINTOUT DEVICE FOR METEOROLOGICAL DATA RECEIVER/RECORDER

William S. Fabianic; Benno B. Jancowskis, and Robert P. Lannerd, all of Indianapolis, Ind., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 1, 1971, Ser. No. 177,031
Int. Cl. G01d
U.S. Cl. 346—23 **4 Claims**



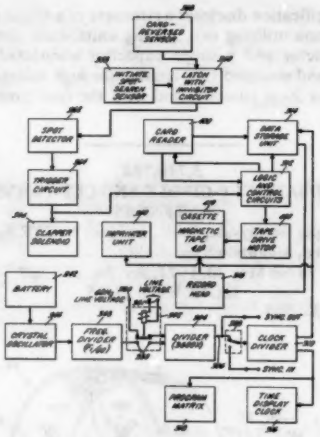
A gridding and printout device for meteorological data receiver-recorders having a grid pattern on a moving film that is scanned by a flying spot fiber optic cathode ray tube (CRT) scanner and the scan picked up by a photo detector to transform the grid pattern from the film into electrical signals to be superimposed upon or mixed with the electrical signals received from a satellite for display of cloud covers and the like.

3,740,759

TIME ACCOUNTING APPARATUS

James J. McKeegan, Ocean City, N.J.; Oliver F. Cheney, Philadelphia, and Ignatius F. Bash, Huntingdon Valley, both of Pa., assignors to Alcotronics Corporation, Mount Laurel Township, N.J.

Filed June 18, 1971, Ser. No. 154,509
Int. Cl. G07c 1/14
U.S. Cl. 346—44 **7 Claims**



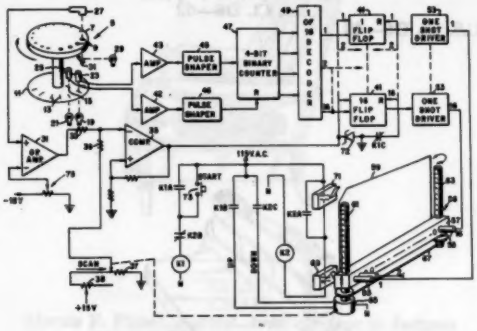
A time accounting method in which each employee is provided with time-card means bearing his name in visually readable form, having a time-imprintable portion, and having machine-readable coded indicia thereon identifying a number assigned to that employee. Time-clock appraratus is provided into which the time-card means is removably insertable, and which responds to insertion of the time-card means into it to print the time of insertion upon the imprintable portion of the time-card means, so that when the time-card means is removed it bears a visually-readable time imprint. The time-clock apparatus also responds to insertion of the time-card means to read the coded indicia thereon and to record corresponding information representative of the employee's identifying number upon a magnetic tape in a cassette unit within the time-clock apparatus. It also records the time of insertion automatically upon the tape in association with the employee's account number. Periodically, for example at the end of each week, the cassette is removed to a computer center where it is machine-read, and where payroll can be computed for the employees. Imprinting and reading of the time-card means are done "on the fly" as the time-card means is mvoing into or out of the time-clock apparatus. The time-card means may consist entirely of a flexible card similar to a computer punch-card with the coded indicia appearing as holes through the card near one end thereof; alternatively, the time-card means may comprise a flexible card and a reusable holder for the card, the coded indicia comprising holes through the holder near one of its ends and the name of the particular employee being embossed on the holder so it may be used later in effecting printing upon the card of the employee's name when the cards for one week are replaced with fresh cards for the next week.

3,740,760

REACTION END-POINT RECORDER FOR USE WITH A ROTARY ANALYTICAL PHOTOMETER

Wayne F. Johnson, Loudon, and William R. Miller, Oak Ridge, both of Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Nov. 9, 1971, Ser. No. 196,900
Int. Cl. G01r *23/18*; G01d *5/243*
U.S. Cl. 346—74 E 10 Claims



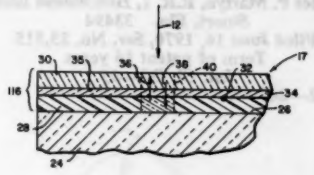
An analog data recording system has been provided for recording data values from a rotary analytical photometer. The system comprises means for scanning the range of data values, comparing the data values with the instantaneous value of a logarithmic scan voltage and energizing individual marking means that are synchronized with the scan when the voltage value of the scan equals the individual data voltage value.

3,740,761

LASER RECORDING MEDIUM

Henry G. Fechter, Skokie, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed May 28, 1971, Ser. No. 147,939
Int. Cl. G01d *15/34*
U.S. Cl. 346—135 5 Claims



Successive areas of recording medium, having a precursor (methylene blue) reduceable with a low level of energy, are exposed to monochromatic (red) laser output for forming a record. The precursor is carried in a thin thermoplastic film from a substrate, has a color complementary to the color of the laser output, and is opaque to the wave length of energy to be used for sensing the record. A latent reducing agent included in the recording medium is carried in a thin thermoplastic film supported from the substrate. It releases a reducing agent which react with the precursor upon exposure of the medium to the laser output to reduce the precursor to a state (leuco form) which is permeable (transparent) to the wave length of the record sensing energy.

Spontaneous reduction of the precursor is prevented, according to a modified embodiment of the disclosure, by an inert barrier comprised of a thermoplastic film sandwiched in the recording medium between the films containing the precursor and the reducing agent.

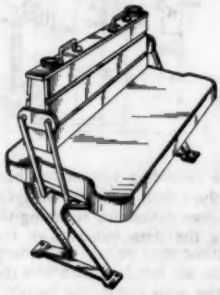
DESIGNS

JUNE 19, 1973

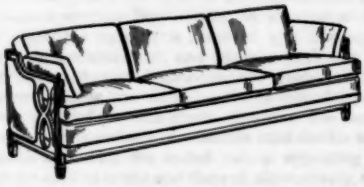
227,318
HAT
Charles P. Martyn, R.R. 1, Hutchinson Island, Stuart, Fla. 33494
Filed June 16, 1970, Ser. No. 23,515
Term of patent 14 years
Int. Cl. D2—*03*
U.S. Cl. D2—247

227,319
HAIRBRUSH
Douglas M. Small, Springfield, Mass., assignor to Stanley Home Products, Inc., Westfield, Mass.
Filed Mar. 15, 1972, Ser. No. 235,101
Term of patent 14 years
Int. Cl. D4—*02*
U.S. Cl. D4—29

227,320
PILOT SEAT
Robert J. Dougherty, Hingham, Mass., assignor to The Fisher-Pierce Company, Inc., Rockland, Mass.
Filed June 28, 1971, Ser. No. 157,814
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—48



227,321
SOFA
Morris F. Fisher, Carmel, Ind., assignor to Jackson Chair Company, Inc., Danville, Ky.
Filed Oct. 26, 1971, Ser. No. 192,707
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—62

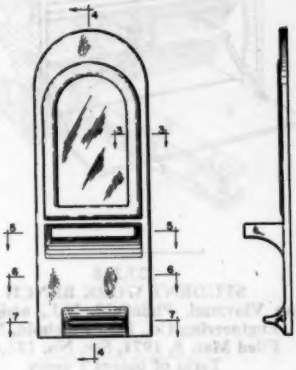


227,322
CHAIR
Don Ray Gill, Hammond, Ind., assignor to Mohasco Industries, Inc., Amsterdam, N.Y.
Filed Apr. 22, 1971, Ser. No. 136,637
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—68

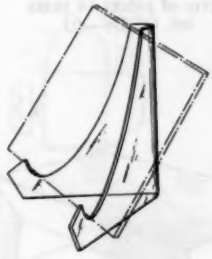
227,323
CHAIR
Morris F. Fisher, Carmel, Ind., assignor to Jackson Chair Company, Inc., Danville, Ky.
Filed Oct. 26, 1971, Ser. No. 192,708
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—68

227,324
DISPLAY RACK
David Rauch, Worcester, Mass., assignor to Van Brode Milling Co., Inc., Clinton, Mass.
Filed June 1, 1971, Ser. No. 149,098
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—85

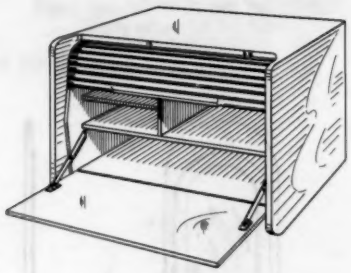
227,325
WALL-MOUNTED VANITY FOR BEAUTY SALONS
Max G. Peterson, P.O. Box 1992, Stockton, Calif. 95201
Filed May 3, 1971, Ser. No. 140,003
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—132



227,326
DISPLAY HOLDER FOR PICTURES, PLAQUES, CARDS OR THE LIKE
Benay Venuta, 50 E. 79th St., New York, N.Y. 10021
Filed Mar. 24, 1971, Ser. No. 127,860
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—140

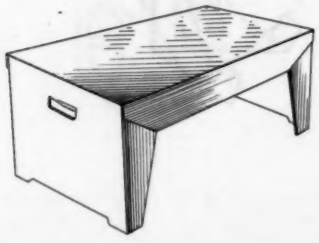


227,327
CABINET
William H. Tucker, Columbus, and Samuel C. Von Brock, Lancaster, Ohio, assignors to Martec Corporation, Columbus, Ohio
Filed Apr. 26, 1971, Ser. No. 137,746
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—150



227,328
STUDENT WORK BENCH
Ralph San Viovanni, Plainfield, N.J., assignor to Buck Engineering Co., Inc., Freehold, N.J.
Filed Mar. 5, 1971, Ser. No. 121,614
Term of patent 7 years
Int. Cl. D6—*04*
U.S. Cl. D6—157

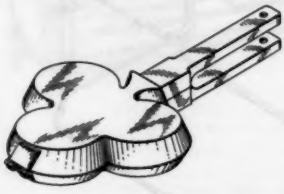
227,329
TABLE
Charles Grossman, Nassau County, N.Y., assignor to Southern Container Corp., Deer Park, N.Y.
Filed Jan. 12, 1972, Ser. No. 217,419
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—177



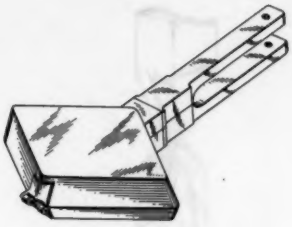
227,330
FURNITURE LEG
Fuller Robinson, Laval, Quebec, Canada, assignor to Standard Desk Company, Laval, Quebec, Canada
Filed Oct. 29, 1970, Ser. No. 25,712
Term of patent 3½ years
Int. Cl. D6—*06*
U.S. Cl. D6—194

227,331
ADJUSTABLE GARMENT HANGER
Benjamin Levitin, P.O. Box 18948, Los Angeles, Calif. 90018
Filed May 3, 1971, Ser. No. 139,994
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—252

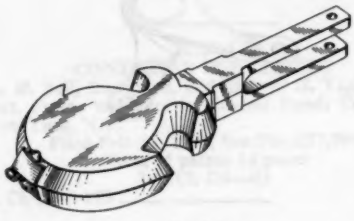
227,332
SKILLET OR SIMILAR ARTICLE
John Di Lorenzo, 235 W. 46th St., New York, N.Y. 10036
Filed Feb. 1, 1972, Ser. No. 222,714
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—85



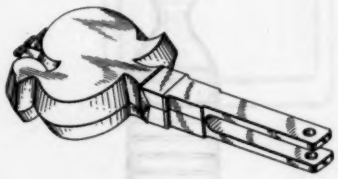
227,333
SKILLET OR SIMILAR ARTICLE
John Di Lorenzo, 235 W. 46th St., New York, N.Y. 10036
Filed Feb. 1, 1972, Ser. No. 222,717
Term of patent 3½ years
Int. Cl. D7—*02*
U.S. Cl. D7—85



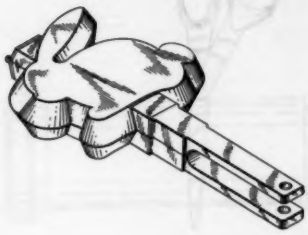
227,334
SKILLET OR SIMILAR ARTICLE
John Di Lorenzo, 235 W. 46th St., New York, N.Y. 10036
Filed Feb. 7, 1972, Ser. No. 224,370
Term of patent 3½ years
Int. Cl. D7—*02*
U.S. Cl. D7—85



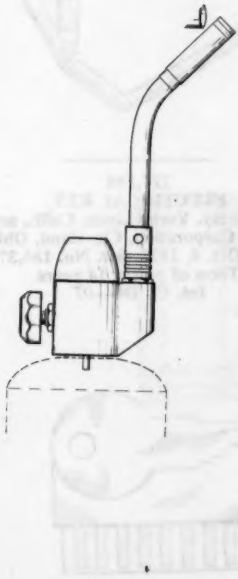
227,335
SKILLET OR SIMILAR ARTICLE
John Di Lorenzo, 235 W. 46th St., New York, N.Y. 10036
Filed Feb. 7, 1972, Ser. No. 224,371
Term of patent 3½ years
Int. Cl. D7—*02*
U.S. Cl. D7—85



227,336
SKILLET OR SIMILAR ARTICLE
John Di Lorenzo, 235 W. 46th St., New York, N.Y. 10036
Filed Feb. 7, 1972, Ser. No. 224,372
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—85

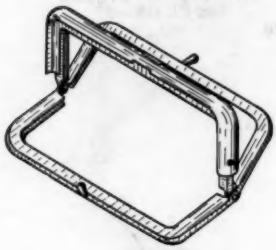


227,337
HYDROCARBON GAS FUEL TORCH
Cadet E. Bowman, Sycamore, Ill., assignor to Olin Corporation
Filed Nov. 19, 1971, Ser. No. 200,651
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—30

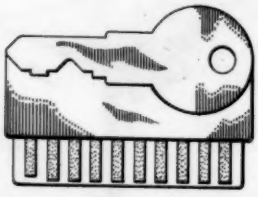


227,338
SCISSORS
Olof Backstrom, Fiskars, Finland, assignor to Oy Fiskars AB, Helsinki, Finland
Filed May 24, 1971, Ser. No. 146,611
Claims priority, application Belgium Jan. 22, 1971
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—57

227,339
FRAME MOLDING FOR A PURSE
Karl H. Nos, Steinheimer Str. 58, Brd, Germany
Continuation-in-part of design application Ser. No. 22,758, May 1, 1970. This application Nov. 26, 1971, Ser. No. 202,725
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D8—125



227,340
ELECTRICAL KEY
Robert B. Phinizy, Yorba Linda, Calif., assignor to Eaton Corporation, Cleveland, Ohio
Filed Oct. 4, 1971, Ser. No. 186,371
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—136



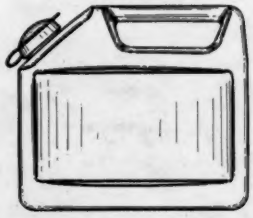
227,341
HAND LEVER
Raymond U. H. Tegner, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill.
Filed Jan. 10, 1972, Ser. No. 216,907
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—161

227,342
ADJUSTABLE SWITCH ADAPTER BRACKET
Fred W. Buckman, 943½ Agate, San Diego, Calif. 92109
Filed May 7, 1971, Ser. No. 141,458
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—233

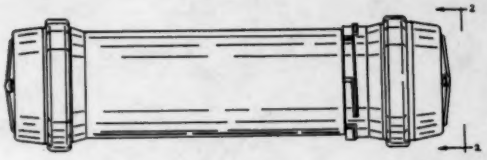
227,343
BOTTLE
Henry Finkel, Montreal, Quebec, Canada, assignor to Twincraft Ltd., Montreal, Quebec, Canada
Filed Feb. 22, 1972, Ser. No. 228,482
Term of patent 7 years
Int. Cl. D9—*01*
U.S. Cl. D9—117

227,344
BOTTLE
Nathan B. Lerner, Chicago, Ill., assignor to W. Braun Company, Chicago, Ill.
Filed Oct. 20, 1971, Ser. No. 191,154
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—143

227,345
CONTAINER FOR LIQUIDS
Mace H. Bell, Rowayton, and Richard H. Yagami, Westport, Conn., assignors to General Foods Corporation, New York, N.Y.
Filed Feb. 18, 1972, Ser. No. 227,704
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—175



227,346
CONTAINER FOR PNEUMATIC CONVEYING SYSTEM
Anthony Philip Fischer, 1567 Kerr Ave., St. Lambert, Quebec, Canada
Filed May 21, 1971, Ser. No. 146,003
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—216



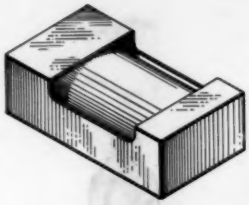
227,347
CAN OR SIMILAR ARTICLE
Dexter M. Bystedt, Clarendon Hills, and Thomas R. Stanley, Downers Grove, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
Filed Dec. 10, 1971, Ser. No. 206,765
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—216

227,348
CAN OR SIMILAR ARTICLE
Richard B. Bagguley, Orland Park, and Carmen T. Mascia, Westmont, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
Filed Feb. 22, 1972, Ser. No. 228,464
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—216

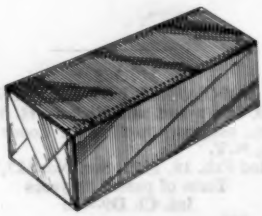
227,349
CAN OR SIMILAR ARTICLE
Richard B. Bagguley, Orland Park, and Carmen T. Mascia, Westmont, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
Filed Feb. 22, 1972, Ser. No. 228,465
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—216

227,350
CAN OR SIMILAR ARTICLE
Richard B. Bagguley, Orland Park, and Carmen T. Mascia, Westmont, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
Filed Feb. 22, 1972, Ser. No. 228,466
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—216

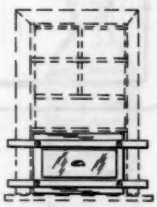
227,351
PACKAGING CONTAINER
Franklin W. Winton, Stratford, Conn., assignor to Warnaco Inc., Bridgeport, Conn.
Filed May 19, 1971, Ser. No. 145,099
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—224



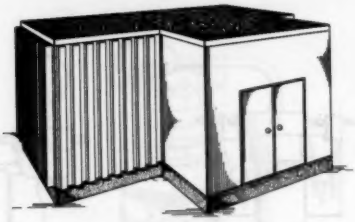
227,352
PACKAGE WITH STAGGERED PRODUCT SLICES
John C. Meng and Gerald J. Driessen, Green Bay, Wis., assignors to L. D. Schreiber Cheese Co., Inc.
Filed July 15, 1970, Ser. No. 23,972
Term of patent 14 years
Int. Cl. D9—*05*
U.S. Cl. D9—250



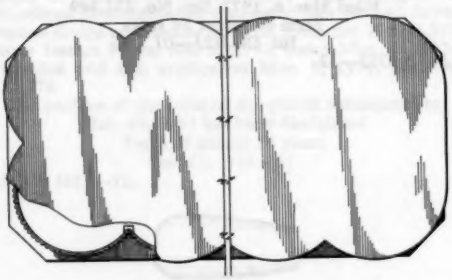
227,353
RETRACTABLE WINDOW CASE STRUCTURE
John P. Francis, 20 Boston St., Haverhill, Mass. 01830
Filed Mar. 22, 1971, Ser. No. 127,063
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D13—1 M

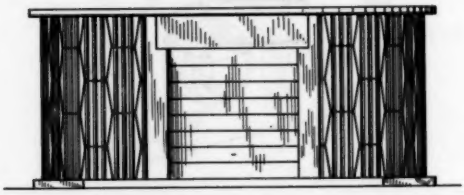


227,354
UTILITY BUILDING
Donald Michael Genaro, Haworth, N.J., and Gordon Elliott Sylvester, Jamaica, N.Y., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 29, 1971, Ser. No. 213,792
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 R

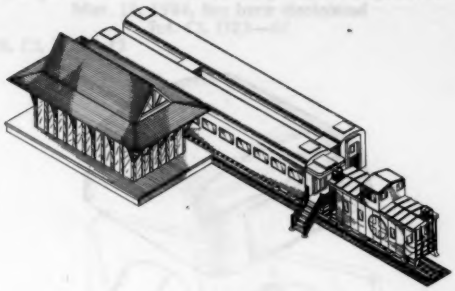


227,355
BUILDING
Charles R. Turner, Hopkins, Mo., assignor to Advance Concrete and Asphalt Co., Maryville, Mo.
Filed Mar. 9, 1972, Ser. No. 233,405
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 R

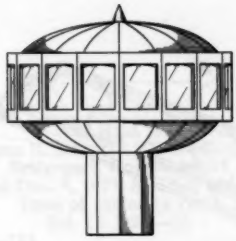




227,356
BUILDING
Reginald E. Winter, 1003 W. Highland Ave., Redlands, Calif. 92373
Filed May 17, 1972, Ser. No. 254,354
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 F

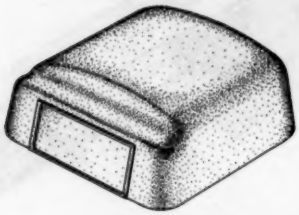


227,357
BUILDING STRUCTURE
Alton D. Wheeler, 3940 Fox Meadow, Pasadena, Tex. 77502
Filed May 18, 1972, Ser. No. 254,841
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 E

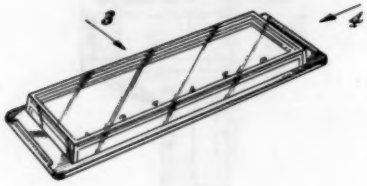


227,358
RACING VEHICLE
Robert S. Kachler, 1047 Pine Ave., Long Beach, Calif. 90813
Filed Mar. 3, 1971, Ser. No. 120,803
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D14—3 G

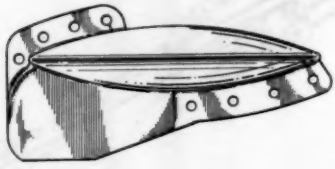
227,359
CAR-TOP CARRIER
Sidney L. Perry, 5145 Kelvin Ave., Los Angeles, Calif.
Original design application May 21, 1968, Ser. No. 12,035, now Patent No. 214,727, dated July 22, 1969. Divided and this application June 16, 1969, Ser. No. 19,796
Term of patent 14 years
Int. Cl. D12—*09, 16*
U.S. Cl. D14—27 C



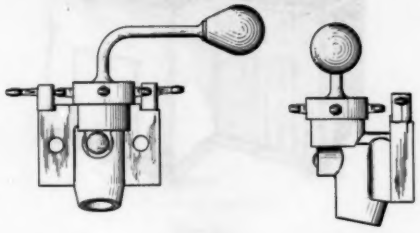
227,360
DIFFUSION PLATE FOR BLOOD ANALYSIS
Kingdon Lou, Tustin, Calif., assignor to ICL Scientific, Fountain Valley, Calif.
Filed Mar. 29, 1971, Ser. No. 129,277
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D16—1 R



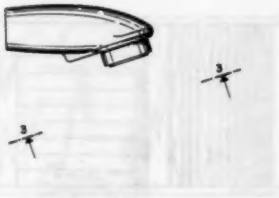
227,361
DEPTH CONTROL FOR A TROLLED FISHING LURE
Max E. Kleman, 4750 Franklin Blvd., Eugene, Oreg. 97405
Filed Dec. 27, 1971, Ser. No. 212,889
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—30



227,362
DISPENSING FAUCET OR SIMILAR ARTICLE
Ronald J. Mrugala, Brooklyn Park, Minn., assignor to The Cornelius Company, Anoka, Minn.
Filed June 28, 1971, Ser. No. 157,791
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—23

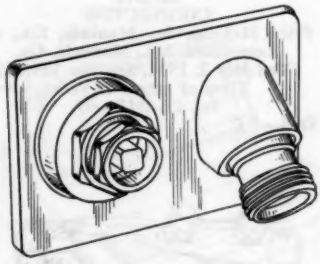


227,363
SPOUT END
Donald M. Genaro, Haworth, N.J., and Charles W. Pelly, Scarsdale, N.Y., assignors to American Standard Inc., New York, N.Y.
Filed Mar. 6, 1972, Ser. No. 232,349
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—32

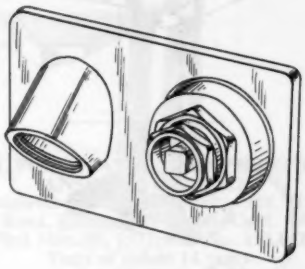


227,364
NOZZLE
Duncan Horatio Campbell, Etobicoke Borough, Ontario, Canada, assignor to Wilson & Cousins Co. Limited, Brampton, Ontario, Canada
Filed Apr. 16, 1971, Ser. No. 134,917
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—34

227,365
WALL HYDRANT
Joseph C. Woodford, Spring Lake, Mich., assignor to Woodford Manufacturing Company, Des Moines, Iowa
Original design application Aug. 21, 1968, Ser. No. 13,229, now Design Patent No. 216,791, dated Mar. 10, 1970. Divided and this application Mar. 9, 1970, Ser. No. 21,776
The portion of the term of the patent subsequent to Mar. 10, 1984 has been disclaimed
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—12

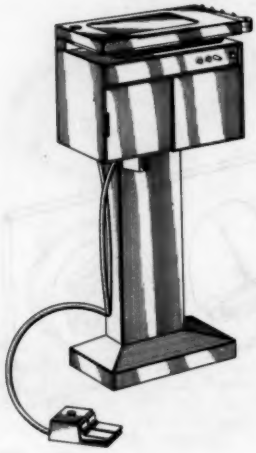


227,366
WALL HYDRANT
Joseph C. Woodford, Spring Lake, Mich., assignor to Woodford Manufacturing Company, Des Moines, Iowa
Original design application Aug. 21, 1968, Ser. No. 13,228, now Design Patent No. 216,790, dated Mar. 10, 1970. Divided and this application Mar. 9, 1970, Ser. No. 21,777
Term of patent 14 years
The portion of the term of the patent subsequent to Mar. 10, 1984, has been disclaimed
Int. Cl. D23—*01*
U.S. Cl. D23—12



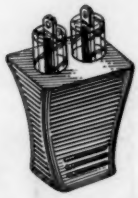
227,367
AIR HEATER
Hermann R. Schaefer, 375 Midland Ave., Bridgeport, Conn. 06605
Filed Dec. 9, 1971, Ser. No. 206,589
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—122

227,368
DENTAL UNIT
Lawrence Emmerson House II, Overland Park, Kans., and Theodore Prisland, Evanston, Ill., assignors to Litton Medical Products, Inc., Beverly Hills, Calif.
Filed Sept. 28, 1972, Ser. No. 293,207
Term of Patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D24—1 B



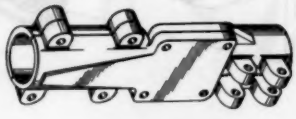
227,369
DENTAL PROPHYLAXIS INSTRUMENT
John R. Hedrick, La Crescenta, and George D. Peverly, Northridge, Calif., assignors to The Columbus Dental Manufacturing Company, Columbus, Ohio
Filed Dec. 15, 1971, Ser. No. 208,526
Term of patent 14 years
Int. Cl. D24—*03*
U.S. Cl. D24—1 D

227,370
SAFETY OUTLET PLUG HAVING INSULATED ELECTRODES
Laurice D. Ely, Culver City, Calif. (2862 Stromboli Road, Costa Mesa, Calif. 92626)
Filed Mar. 15, 1971, Ser. No. 124,656
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—1 B

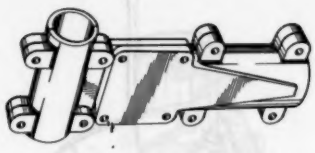


227,371
ELECTRICAL CABLE CLAMP
Alfonso Leto, 12255 Gerald Ave., Granada Hills, Calif. 91344, and Frank Leto, 8936 Amestoy Ave., Northridge, Calif. 91324
Filed May 10, 1971, Ser. No. 142,122
Term of patent 14 years
Int. Cl. D13—*03;* D8—*08*
U.S. Cl. D26—1 A

227,372
CONNECTOR
Edward Price McLean, Jr., Moultrie, Ga., assignor to Ampersand, Inc., Moultrie, Ga.
Filed July 2, 1971, Ser. No. 159,155
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—1 C



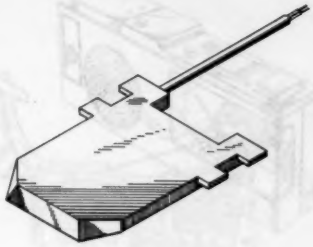
227,373
CONNECTOR
Edward Price McLean, Jr., Moultrie, Ga., assignor to Ampersand, Inc., Moultrie, Ga.
Filed July 2, 1971, Ser. No. 159,220
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—1 C



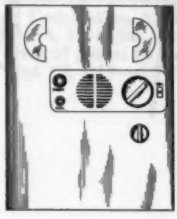
227,374
BATTERY TERMINAL CAP
Robert A. Julian, 1608 Brenda Drive, Bellevue, Nebr. 68005
Filed Nov. 15, 1971, Ser. No. 199,094
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—1 E

227,375
CASING FOR A COMPUTER TERMINAL
Robert Howard, New York, N.Y., assignor to Centronics Data Computer Corp., Hudson, N.H.
Filed July 24, 1972, Ser. No. 274,477
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C

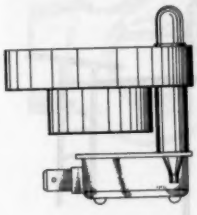
227,376
TELEPHONE LIGHT
David C. Frison, 1418 Germantown St., Dayton, Ohio 45408
Filed Dec. 23, 1971, Ser. No. 211,846
Term of patent 3½ years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A



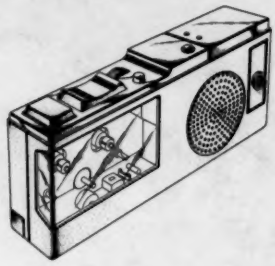
227,377
PANEL FOR AN AUTOMATIC TELEPHONE ANSWERING DEVICE
Neal J. Buglewicz, Hermosa Beach, Calif. (12 Empty Saddle Road, Rolling Hills Estate, Calif. 90274)
Filed Mar. 26, 1971, Ser. No. 128,652
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A



227,378
COMBINED SWITCH AND MICROPHONE FOR AN ACOUSTIC COUPLER
John P. Kennedy, Columbus, Ohio, assignor to Design Elements, Inc.
Filed Jan. 3, 1972, Ser. No. 215,269
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A



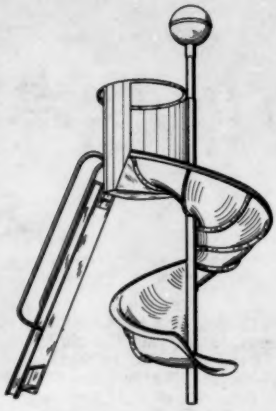
227,379
TAPE RECORDER
Masayuki Sakuma, Yokohama, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed June 16, 1972, Ser. No. 263,695
Claims priority, application Japan Dec. 21, 1971
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14 B



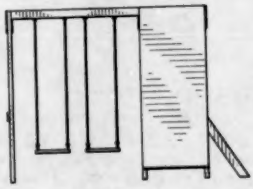
227,380
PLAYGROUND EQUIPMENT FRAME
Erwin N. Korte, Carbondale, and Donal D. Hock, Herrin, Ill., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Nov. 17, 1971, Ser. No. 199,823
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5 M

227,381
PLAYGROUND APPARATUS
Erwin N. Korte, Carbondale, and Donal D. Hock, Herrin, Ill., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Nov. 17, 1971, Ser. No. 199,824
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5 H

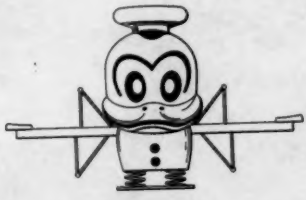
227,382
PLAYGROUND SPIRAL SLIDE
Robert S. Wormser and Ronald L. Ewers, Hillsdale, Mich., assignors to Game Time, Inc., Litchfield, Mich.
Filed Feb. 14, 1972, Ser. No. 226,359
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5 E



227,383
COMBINATION SWING SET AND PLAY HOUSE
Clifford W. Sanderson, 9817 Shepherds Drive, Kansas City, Mo. 64131
Filed Feb. 22, 1972, Ser. No. 228,442
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5 M

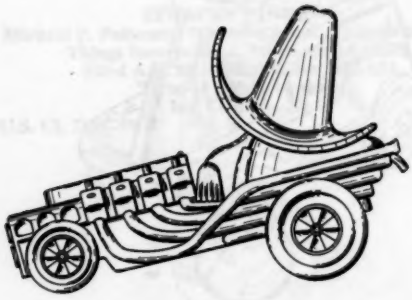


227,384
PLAYGROUND SEESAW
Claude W. Ahrens, West Highway 6, Grinnell, Iowa 50112
Filed July 24, 1972, Ser. No. 274,462
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5 C

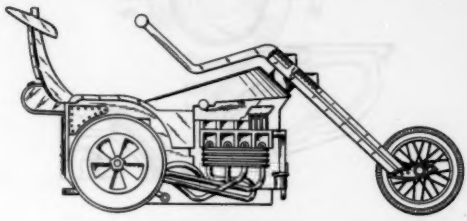


227,385
TOY DRAGSTER
Larry R. Wood, Lawndale, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Oct. 4, 1971, Ser. No. 186,598
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ

227,386
STYLIZED TOY VEHICLE
Larry R. Wood, Redondo Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Apr. 19, 1972, Ser. No. 245,684
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ

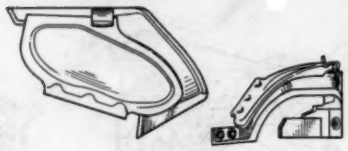


227,387
TOY MOTORCYCLE
Larry R. Wood, Redondo Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Aug. 8, 1972, Ser. No. 278,860
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ

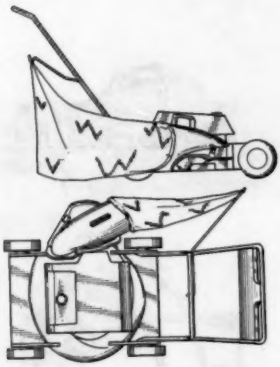


227,388
COMBINATION ROTARY MOWER HOUSING WITH DISCHARGE DEFLECTOR AND BAG CHUTE
Richard A. Thorud, Minneapolis, Minn., assignor to Toro Manufacturing Corporation, Minneapolis, Minn.
Filed Jan. 14, 1971, Ser. No. 106,618
Term of patent 14 years
Int. Cl. D15—*03, 99*
U.S. Cl. D40—1 B

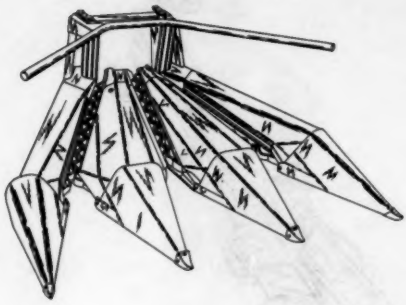
227,389
DISCHARGE DEFLECTOR FOR MOWERS AND THE LIKE
Richard A. Thorud, Minneapolis, Minn., assignor to Toro Manufacturing Corporation, Minneapolis, Minn.
Filed Jan. 14, 1971, Ser. No. 106,622
Term of patent 14 years
Int. Cl. D15—*03, 99*
U.S. Cl. D40—1 A



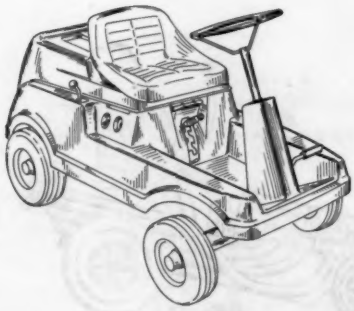
227,390
ROTARY MOWER
Richard A. Thorud, Minneapolis, Minn., assignor to Toro Manufacturing Corporation, Minneapolis, Minn.
Filed Jan. 14, 1971, Ser. No. 106,624
Term of patent 14 years
Int. Cl. D15—*03, 99*
U.S. Cl. D40—1 B



227,391
ROW CROP HARVESTING ATTACHMENT
Allan Keith Lawrence, Ottumwa, Iowa, assignor to Deere & Company, Moline, Ill.
Filed July 24, 1972, Ser. No. 274,567
Term of patent 14 years
Int. Cl. D15—*03*
U.S. Cl. D40—1 E

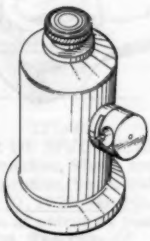


227,392
VEHICLE FOR USE WITH A MOWER
Robert A. Skyer, Palatine, and George E. Bowman, Country Club Hills, Ill., assignors to International Harvester Company, Chicago, Ill.
Filed Aug. 28, 1972, Ser. No. 284,296
Term of patent 14 years
Int. Cl. D15—*03*
U.S. Cl. D40—1 D



227,393
HOOK FOR PIPE COUPLERS OR THE LIKE
Francis L. Bickham, Dickinson, Tex., assignor to H. C. Price Co., Bartlesville, Okla.
Filed Apr. 23, 1971, Ser. No. 137,120
Term of patent 14 years
Int. Cl. D12—*05*; D8—*08*
U.S. Cl. D41—1 R

227,394
LIFTING JACK
Arthur Dewhirst Hey-Shipton, 39 Westroyd Crescent, Pudsey, England
Filed Mar. 29, 1972, Ser. No. 239,400
Claims priority, application Great Britain Nov. 13, 1971
Term of patent 14 years
Int. Cl. D12—*05*
U.S. Cl. D41—1 D

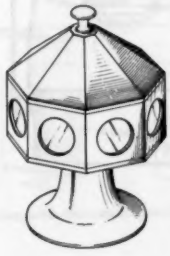


227,395
JEWELRY FINDING
Michael P. Patterson, Wayzata, Minn., assignor to Great Things Incorporated, Minneapolis, Minn.
Filed Apr. 20, 1971, Ser. No. 135,824
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—1 R

227,396
JEWELRY FINDING
Michael P. Patterson, Wayzata, Minn., assignor to Great Things Incorporated, Minneapolis, Minn.
Filed Apr. 20, 1971, Ser. No. 135,825
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—1 R

227,397
SHAFT BUSHING
Fred J. Steinke, South Bend, Ind., assignor to Reliance Electric Company, Mishawaka, Ind.
Filed Dec. 14, 1970, Ser. No. 26,441
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D46—1

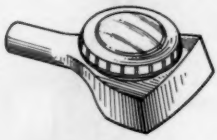
227,398
LAMP
S. Leonard Ginsberg, 66 Lovelace Drive, West Hartford, Conn. 06117
Filed Dec. 1, 1971, Ser. No. 203,935
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D48—20 R



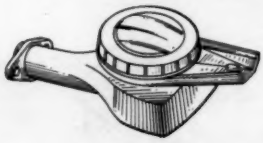
227,399
LAMP
Kendall R. Foster, 14762 Foxcroft Road, Tustin, Calif. 92680
Filed July 7, 1971, Ser. No. 160,579
Term of patent 7 years
Int. Cl. D26—*02*
U.S. Cl. D48—24 R

227,400
PORTABLE NUCLEAR DENSITY-MOISTURE INSTRUMENT
John R. Martin, Glendale, Wis., assignor to Soiltest, Inc., Evanston, Ill.
Filed May 11, 1971, Ser. No. 142,421
Term of patent 14 years
Int. Cl. D10—*99*
U.S. Cl. D52—1

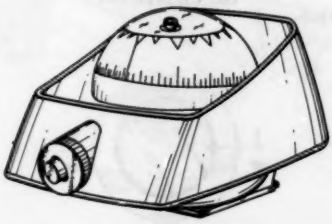
227,401
OIL GAGE OR THE LIKE
Richard A. Thorud, Minneapolis, Minn., assignor to Toro Manufacturing Corporation, Minneapolis, Minn.
Filed Dec. 28, 1970, Ser. No. 26,653
Term of patent 14 years
Int. Cl. D10—*05*
U.S. Cl. D52—6



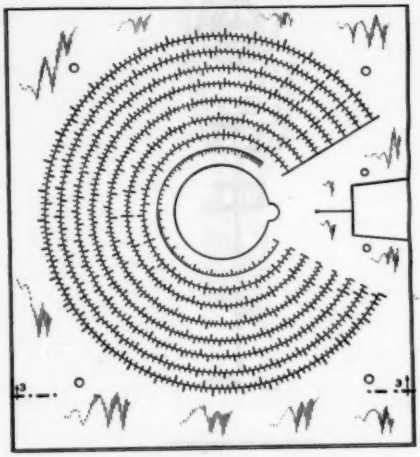
227,402
VISUAL OIL GAGE OR THE LIKE
Richard A. Thorud, Minneapolis, Minn., assignor to Toro Manufacturing Corporation, Minneapolis, Minn.
Filed Dec. 28, 1970, Ser. No. 26,666
Term of patent 14 years
Int. Cl. D10—*05*
U.S. Cl. D52—6



227,403
MAGNETIC COMPASS
Toshikazu Yusa, 8–15 Oyama-cho, Tokyo, Japan
Filed Dec. 29, 1970, Ser. No. 26,694
Term of patent 7 years
Int. Cl. D10—*07*
U.S. Cl. D52—6



227,404
DIAL FACE FOR A SCALE
Alfred G. Stanton, Nyack, N.Y., assignor to Alfred Suter Co., Inc., New York, N.Y.
Filed Nov. 26, 1971, Ser. No. 202,711
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—10 A

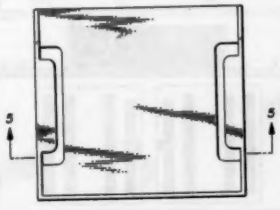


227,405
PAIR OF SPECTACLES
Anthony Shindler, Brookline, Mass., assignor to American Optical Corporation, Southbridge, Mass.
Filed Aug. 27, 1970, Ser. No. 24,737
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D57—1 F

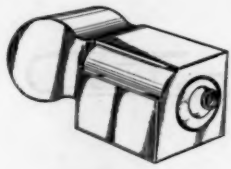
227,406
CONTACT LENS CASE
David L. Nathan, Maplewood, N.J., assignor to Opticase, Inc., Rockaway, N.J.
Filed Dec. 1, 1971, Ser. No. 203,942
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D57—1 B

227,407
PAIR OF SPORT SPECTACLES
Vitalino Marchi, Concord, Mass., assignor to Foster Grant Co., Inc., Leominster, Mass.
Filed Feb. 11, 1972, Ser. No. 225,698
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D57—1 F

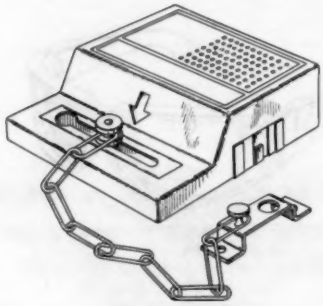
227,408
CARD HOLDER
John E. Hotchkiss, Corte Madera, Calif., assignor to Hotchkiss Instruments, Inc.
Filed May 27, 1970, Ser. No. 23,167
Term of patent 14 years
Int. Cl. D16—*05*
U.S. Cl. D61—1 E



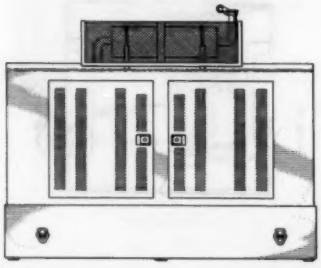
227,409
MOTION PICTURE CAMERA HOUSING
Walter H. Bach, 1771 N. Crescent Heights Blvd., Los Angeles, Calif. 90069
Continuation of design applications Ser. No. 25,132 and Ser. No. 25,133, both Sept. 22, 1970. This application Dec. 20, 1971, Ser. No. 210,310
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D61—1 C



227,410
BURGLAR ALARM
Wan Kwong Yip, Kowloon, Hong Kong, assignor to Chung AH Manufacturing Company Limited, San Po Kong, Kowloon, Hong Kong
Filed Dec. 20, 1971, Ser. No. 210,309
Claims priority, application Great Britain Oct. 13, 1971
Term of patent 14 years
Int. Cl. D29—*99*; D8—*07*
U.S. Cl. D72—1 A



227,411
PORTABLE ENGINE-GENERATOR UNIT
Gasper V. De Bella, Hillsborough, Calif., assignor to Cal-West Electric Inc.
Filed May 5, 1971, Ser. No. 140,647
Term of patent 14 years
Int. Cl. D13—*01*
U.S. Cl. D77—1 R

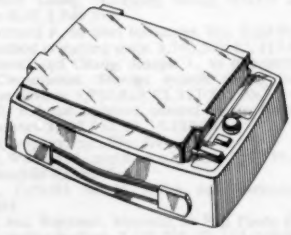


227,412
DISPLAY STAND
Andrew Wyzenbeek, Chicago, Ill., assignor to Christian Business Men's Committee International, Glen Ellyn, Ill.
Filed Dec. 9, 1966, Ser. No. 4,976
The portion of the term of the patent subsequent to July 19, 1984 has been disclaimed
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D80—10

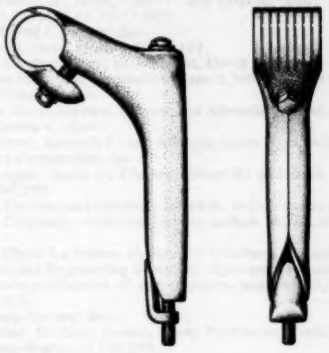
227,413
FUNNEL FOR A SANITARY SPECIMEN COLLECTOR
Michael H. Sherin, Fontana, Wis., assignor to Sage Products Inc., Elk Grove, Ill.
Continuation-in-part of design application Ser. No. 133,484, Apr. 12, 1971. This application Mar. 16, 1972, Ser. No. 222,816
Term of patent 14 years
Int. Cl. D24
U.S. Cl. D83—1 U

227,414
COMB
William Samuel Terry, Culver City, Calif.
(932 Vernon Ave., Venice, Calif. 90291)
Filed Feb. 3, 1972, Ser. No. 223,401
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D86—8

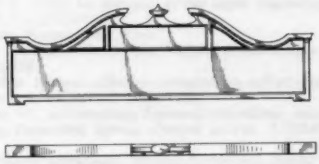
227,415
CASING FOR AN ELECTRIC HAIRSETTER
William J. Cook, Trumbull, Conn., assignor to General Electric Company
Filed Mar. 24, 1972, Ser. No. 237,998
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D86—10 E



227,416
BICYCLE STEERING POST
Carlton P. Pawsat, Maysville, Ky., assignor to Wald Manufacturing Company, Inc., Maysville, Ky.
Continuation-in-part of abandoned design applications Ser. No. 22,181 and Ser. No. 22,182, both Apr. 1, 1970. This application Nov. 5, 1970, Ser. No. 127,056
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D90—9



227,417
NAMEPLATE
Frank B. Roth, St. Louis, Mo., assignor to Jackes-Evans Manufacturing Company, St. Louis, Mo.
Filed Mar. 15, 1971, Ser. No. 124,644
Term of patent 14 years
Int. Cl. D20—*03*
U.S. Cl. D96—12 F



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TO WHOM

PATENTS WERE ISSUED ON THE 19TH DAY OF JUNE, 1973

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. Ahlstrom Osakeyhtio: *See—*
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Aasen, Torulf F.; Mogil, Bernard; and Schaffel, Martin, to Copystatics Manufacturing Corporation. Toner supply system for copying machine. 3,739,800, Cl. 137-93.000.

AB Grindex: *See—*
Lundberg, Borje Oskar, 3,739,529.

Abar Corporation: *See—*
Schmidt, Charles J., 3,739,921.

Abbott Laboratories: *See—*
Martin, Jerry Roy, 3,740,425.
Whipperman, Ronald Lee, 3,740,081.

Abex Corporation: *See—*
Novotny, Raymond J., 3,739,981.

Abrams, Morris, to Arrow Fastener Co., Inc. Stapling machine. 3,739,973, Cl. 227-120.000.

Acme-Cleveland Corporation: *See—*
Schubert, Karl P., 3,739,660.

Acti Products, Inc.: *See—*
Blatherwick, Delbert T., 3,739,479.
Blatherwick, Delbert T., 3,740,138.

Adams, Beatrice N.: *See—*
Wesley, Neil G., 3,740,565.

Adams, John F. Book supporting device. 3,740,015, Cl. 248-445.000.

Adams, Kenneth D.: *See—*
Herron, William L.; and Adams, Kenneth D., 3,739,735.

Adams, Lawrence D.: *See—*
Brevko, Robert; Viviano, Peter; Rudman, Regis M.; and Adams, Lawrence D., 3,739,547.

Addis, Gilbert I.; and Fairbanks, George M., to Thomas & Betts Corporation. Method of joining concentric members. 3,739,460, Cl. 29-516.000.

Addressograph-Multigraph Corporation: *See—*
Maloney, William R.; and Margulis, Harry, 3,740,136.
Zupancic, Anton Z., 3,739,718.

Adler, Alan. Amusement device. 3,740,128, Cl. 352-99.000.

Adler, Karl; and Docommun, George, to Bivator S.A., mesne. Miniaturized electric source having a radioactive heat source. 3,740,273, Cl. 136-202.000.

Adutskevich, Eduard Kazimirovich: *See—*
Gudz, Nikolai Martynovich; and Adutskevich, Eduard Kazimirovich, 3,739,790.

Afga-Gevaert Aktiengesellschaft: *See—*
Wagensonner, Eduard; and Schmidt, Ulrich, 3,740,130.

AGES S.p.A.-Azienda Generale Elettronica Servomeccanismi: *See—*
Colombo, Gianni; and Ippolito, Giovanni, 3,740,729.

Agfa-Gavaert: *See—*
De Haes, Louis Maria; Hofman, Emiel Alexander; and Gevers, Hugo Karel, 3,740,220.

Agfa-Gevaert: *See—*
Willems, Jozef Frans; and Schots, Paul Maurice, 3,740,221.

Agfa-Gevaert Aktiengesellschaft: *See—*
Bestenreiner, Friedrich; Deml, Reinhold; and Helmberger, Josef, 3,740,464.
Ohlschlager, Hans; and Himmelmann, Wolfgang, 3,740,228.
Wolff, Erich; Lassig, Wolfgang; Seelig, Eckart; and Bergisch, Gunther Kolf, 3,740,376.

Agostinelli, Armand J., to Dart Industries, Inc. Dual finish surgeon's glove and method of making same. 3,740,262, Cl. 117-94.000.

Agusta, Benjamin; and Chang, Joseph J., to International Business Machines Corporation. Storage system having heterojunction-homojunction devices. 3,740,620, Cl. 317-235.00r.

Aine, Harry E. Exhaust emission control means for internal combustion apparatus. 3,739,553, Cl. 55-158.000.

Air Preheater Company, Inc., The: *See—*
Anderson, William M.; and Renko, Ronald J., 3,739,557.

Aisin Seiki Kabushiki Kaisha: *See—*
Mackawa, Tadashi; Suzuki, Akira; and Haramura, Shigenori, 3,739,868.

Akashi, Coro; and Fujiyama, Masaaki, to Fuji Photo Film Co., Ltd. Magnetic recording medium. 3,740,266, Cl. 117-240.000.

Akiyama, Hisao; Okano, Shigeru; Suzuki, Hiroyuki; Maezima, Kaoru; Komatsu, Toshiaki; and Katsura, Toyozo, to Sumitomo Chemical Company, Limited. Water-soluble antibacterial compounds. 3,740,411, Cl. 260-295.00q.

Akiyama, Kazuhiro, to Minolta Camera Kabushiki Kaisha. Focal plane shutter control mechanism for a photographic shutter. 3,739,704, Cl. 95-57.000.

Aktiebolaget Astra: *See—*
Carlsson, Per Arvid Emil; Corrodi, Hans Rudolf; Florwall, Gosta Lennart; and Ross, Svante Bertil, 3,740,430.

Aktiebolaget Bofars: *See—*
Hellner, Lars Ivar; Hede, Nils Erik Allan; and Johansson, Hans Elof, 3,740,213.

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Aktiengesellschaft Brown, Boveri & Cie: *See—*
Clerc, Henri; and Floessel, Dieter, 3,740,509.
Hug, Hermann; Moser, Paul; Schwarz, Hans; and Zimmermann, Max, 3,740,168.
Vogel, Xaver, 3,740,618.

Alberici, Gisele M.; Botta, Lilly U.; and Jahrens, Henry W. Weaving device. 3,739,437, Cl. 28-15.000.

Albrecht, David E., mesne: *See—*
Albrecht, David Eugene, 3,740,167.

Albrecht, David Eugene, to Albrecht, David E., mesne and Jensen, Raymond H., mesne. Hydraulic system. 3,740,167, Cl. 417-218.000.

Albrecht, Helmut: *See—*
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Albright, James A.: *See—*
Dorschner, Kenneth P.; and Albright, James A., 3,740,441.

Alcotronics Corporation: *See—*
McKeegan, James J.; Cheney, Oliver F.; and Bash, Ignatius F., 3,740,759.

Alderson, Thomas; and Newman, James A., to Du Pont de Nemours, E. I., and Company. Artificial playing surface. 3,740,303, Cl. 161-67.000.

Aldridge, Clyde L.; Buben, David; and Goldberg, Ronald S., to Esso Research and Engineering Company. Hydrogen production by catalytic steam gasification of carbonaceous materials. 3,740,193, Cl. 48-202.000.

Alfter, Franz-Werner: *See—*
Wienand, Michael; Jensen, Klaus; Primessing, Franz; and Alfter, Franz-Werner, 3,740,294.

Allegheny Ludlum Industries, Inc.: *See—*
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Allen, George Rodger, Jr.: *See—*
Littell, Ruddy; and Allen, George Rodger, Jr., 3,740,404.

Allen, James W.: *See—*
Linfield, Robert F.; Farstad, Arnold J.; and Allen, James W., 3,740,488.

Allen-Bradley Company: *See—*
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Allied Chemical Corporation: *See—*
Haylock, John Christopher, 3,740,267.
Segal, Leon, 3,740,371.

Allis-Chalmers Corporation: *See—*
Crooks, James W., 3,739,647.
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Patchen, Paul J.; and Berti, Jerome L., 3,739,657.

Allis-Chalmers Manufacturing Company: *See—*
Manion, Jean P.; and Davies, Daniel J., 3,740,256.

Allmanna Svenska Elektriska Aktiebolaget: *See—*
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Allport, Walter F. Inflatable balloon pneumatic propulsion device. 3,739,764, Cl. 124-11.00r.

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Manber, Solomon; McGovern, Michael J.; and Stupar, Wesley E., 3,740,608.

Altwirth, Oskar. Denture adhesive composition and process of preparing the same. 3,740,361, Cl. 260-17.4st.

Alvarez, Luis W., to Humphrey Research Associates, mesne. Method of making Fresnelled optical element matrix. 3,739,455, Cl. 29-425.000.

Amakawa, Saichi; Miyamoto, Osamu; Kawamoto, Akito; and Kawai, Hiroshi, to Matsushita Electric Industrial Co., Ltd. Automatic feeding, power-operated envelope opener. 3,739,670, Cl. 83-210.000.

Amasino, Richard L.; and Johrde, Paul S., to Westinghouse Electric Corporation. Dynamoelectric machine slot wedge and filler locking means. 3,740,601, Cl. 310-214.000.

Ambrose, John M. Refuse container. 3,739,715, Cl. 100-100.000.

American Chain & Cable Company, Inc.: *See—*
Lashar, Walter B., Jr., 3,739,571.

American Cyanamid Company: *See—*
Berkelhammer, Gerald; and Gastrock, William Henry, 3,740,400.
Berkelhammer, Gerald; and Asato, Goro, 3,740,434.
Cevasco, Albert Anthony, 3,740,402.
Littell, Ruddy; and Allen, George Rodger, Jr., 3,740,404.

Murdock, Keith Chadwick, 3,740,403.
Schmitt, Edward Emil; and Polistina, Rocco Albert, 3,739,773.
Williams, Laurence Lyman; and Coscia, Anthony Thomas, 3,740,391.

American Home Products Corporation: *See—*
Malis, Jerry L.; and Rosenthale, Marvin E., 3,740,436.
McCaully, Ronald J.; and Gochman, Carl, 3,740,413.

American Optical Corporation: *See—*
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American Standard, Inc.: *See—*
White, Douglas F.; Scardron, Marvin D.; and Faul, Joseph C., 3,739,638.

American Telephone and Telegraph Company: *See—*
Nickerson, Charles, 3,740,485.

Ames, Alvin G. Game ball. 3,740,036, Cl. 273-128.00a.

AMP Incorporated: *See—*
Long, Alden Owen, Jr.; and Shughart, Mervin Leonard, 3,739,446.
Richards, George Gilman, Jr.; and Cherry, Alton Edgar, 3,740,571.

Amtsberg, Lester A., to Chicago Pneumatic Tool Company. Speed responsive centrifugal governor. 3,740,174, Cl. 418-43.000.

Anaconda Company, The, mesne: *See—*
Arndt, Rudolph P.; Ulmer, William W.; and Stone, Daniel G., 3,740,454.

Andersen, Christian Karmark, to Nordisk Ventilator Co. Aktieselskab. Ventilation system for storerooms for root crops and similar products. 3,739,980, Cl. 236-49.000.

Andersen, Richard W.: *See—*
United States of America, National Aeronautics and Space Administration, 3,740,725.

Anderson, Gerald W.: *See—*
Moroz, William J.; Anderson, Gerald W.; and Withstandley, Victor D., 3,740,148.

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Anderson, John R.; and Weiss, Charles O., to Sybron Corporation. Method for precipitation of heavy metal sulfides. 3,740,331, Cl. 210-53.000.

Anderson, Wilfred K.: *See—*
Youngstrom, Jerry R.; Anderson, Wilfred K.; Fletcher, Martin Wallace; Strobele, Caljon H.; and Taylor, Kenneth I., 3,740,463.

Anderson, William M.; and Renko, Ronald J., to Air Preheater Company, Inc., The. Bag filter arrangement. 3,739,557, Cl. 55-302.000.

Andrews, Daniel E., Jr. Strength members and structural components integrally containing fiber optic elements. 3,740,116, Cl. 350-96.00b.

Andrews, Lamont F. Building component construction. 3,739,541, Cl. 52-220.000.

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Berghof, Ernest H., 3,740,518.

Antier, Guy; and Nicolas, Gerard, to Commissariat a l'Energie Atomique. Method of fabrication of a wired magnetic memory plane. 3,739,467, Cl. 29-604.000.

Aoki, Yoshiaki: *See—*
Kimura, Sachio; and Aoki, Yoshiaki, 3,740,679.

Aoyagi, Takaaki: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Hamada, Masa; Maeda, Kenji; and Okami, Toshiro, 3,740,319.

Apeco Corporation: *See—*
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Appalachian Electronic Instruments, Inc.: *See—*
Fertig, Raymond Baines, 3,740,562.

Application Engineering Corporation: *See—*
Waters, Charles E., 3,739,556.

Aqualand Pool Co., Inc.: *See—*
Posnick, Irving H., 3,739,539.

Arata, Jiro, to Toyota Jidosha Kogyo Kabushiki Kaisha. Steering column support assembly. 3,740,068, Cl. 280-87.00a.

Arbed S.A. Arbed-Felten & Guilleaume Vereinigte Drahtwerke: *See—*
Hellerich, Walter; and Sadowski, Volker, 3,740,024.

Arbrook, Inc.: *See—*
Fry, Jack E.; Gerard, Joseph C.; Hickman, Chester C.; and Hummel, John E., 3,739,791.

Archelin, J.: *See—*
Wunning, Joachim, 3,740,182.

Archilithic Co., The: *See—*
Winn, James B., Jr., 3,740,260.

Arid, Alanaan D.; and Gabrail, Sami I., to General Electric Company. Method for lead attachment to pellets mounted in wafer alignment. 3,739,463, Cl. 29-580.000.

Arimura, Ichiro: *See—*
Matsushima, Hiroshi; Arimura, Ichiro; Goto, Hiroshi; Nakao, Yoshikazu; and Oziro, Hazime, 3,740,659.

Arimura, Yoshiaki: *See—*
Kubo, Moritada; and Arimura, Yoshiaki, 3,740,467.

Arkin, Theodore E. Golf practice device. 3,740,052, Cl. 273-189.00r.

Arkin, Theodore E. Golf practice device. 3,740,054, Cl. 273-197.00a.

Armstrong, Edward: *See—*
Jackson, Robert G.; and Armstrong, Edward, 3,740,526.

Arndt, Rudolph P.; Ulmer, William W.; and Stone, Daniel G., to Anaconda Company, The, mesne. Controlled buoyancy electrical strand. 3,740,454, Cl. 174-101.500.

Arnold, Fred E.; and Kovar, Robert F., to United States of America, Air Force. Poly(quinoxalinobisimidazonaphthaldimide) polymers and method of preparation. 3,740,374, Cl. 260-47.0cp.

Arnold, John A.: *See—*
Ohwada, Atsushi; and Arnold, John A., 3,740,731.

Arrow Fastener Co., Inc.: *See—*
Abrams, Morris, 3,739,973.

Arthur, Robert M. Apparatus and method for measuring the amount of gas absorbed or released by a substance. 3,740,320, Cl. 195-103.50r.

Artos Dr.-Ing. Meier-Windhorst Kommanditgesellschaft: *See—*
Meier-Windhorst, Christian August, 3,739,483.
Naujoks, Erich; and Rommel, Heinz, 3,739,436.

Arvin Industries, Inc.: *See—*
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Asahi Glass Co., Ltd.: *See—*
Takahashi, Shiro; and Ichinose, Masataka, 3,740,208.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Yano, Nobumitsu; Fukushima, Masao; Fukinbara, Itaru; Kishi, Masanori; and Kimura, Kazuyoshi, 3,740,244.

Asahi Kogaku Kogyo Kabushiki Kaisha: *See—*
Karikawa, Tohru, 3,740,695.

Asaka, Norishisa: *See—*
Takahashi, Yasuyoshi; Oshiro, Nobuhiko; Msysui, Tsutomu; Tomokubo, Yoshiaki; and Asaka, Norishisa, 3,740,536.

Asami, Tomiaki: *See—*
Maruyama, Shoji; Oida, Etsuo; Hamada, Takao; Asami, Tomiaki; and Iwata, Susumu, 3,740,229.

Asato, Goro: *See—*
Berkelhammer, Gerald; and Asato, Goro, 3,740,434.

Associated Electrical Industries Limited: *See—*
Green, Brian Noel, 3,740,551.

Atal, Bishnu Saroop, to Bell Telephone Laboratories, Incorporated. Speech signal pitch detector using prediction error data. 3,740,476, Cl. 179-1.0sa.

Atkins, Carl E., to Wagner Electric Corporation. High-discrimination antenna array for capacitance-responsive circuits. 3,740,567, Cl. 307-10.0sb.

Auberry, Horace R., to Ro-Search, Incorporated. Footwear, its method of manufacture, and welt material therefor. 3,739,502, Cl. 36-17.00r.

Auburn Engineering, Inc.: *See—*
Brevko, Robert; Viviano, Peter; Rudman, Regis M.; and Adams, Lawrence D., 3,739,547.

Automated Mail Systems, Inc.: *See—*
Harris, Roland G., 3,739,543.

Automatic Druckmaschinenfabrik, Firma: *See—*
Staamann, Otto, 3,739,970.

Automotive Products Company Limited: *See—*
Bainbridge, Wilfred Nicholas, 3,739,885.

Avant Incorporated: *See—*
Macone, Frederick W., 3,739,489.

Avco Corporation: *See—*
Itzkan, Irving, 3,740,665.
Miskolczy, Gabor; and Kaiser, Robert, 3,740,060.
Roberts, Carroll R.; Glidden, Ramon L.; and Molly, Patrick C., 3,739,625.
Zar, Jacob L., 3,740,593.

Aya, Masahiro: *See—*
Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, 3,740,209.

Ayers, David T., Jr., to Kelsey-Hayes Company. Control valve. 3,740,101, Cl. 303-6.00c.

Ayre, Vernon Hall; and Dunaway, J. C., to United States of America, Army. Secondary injection/jet reaction control. 3,740,003, Cl. 244-3.220.

Bachmann, Peter, to Ebauches Bettlach S.A. Column-wheel timer. 3,739,570, Cl. 58-76.000.

Back, Karl Johan, to Oy Cyklop AB. Lifting and binding device. 3,740,087, Cl. 294-74.000.

Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
Barzynsci, Helmut; and Krauch, Carl Heinrich, 3,740,224.

Baetz, Pierre, to Seperic Morat (Canton de Fribourg). Thiazols and thiazino pyrimidines. 3,740,394, Cl. 260-243.00r.

Baier, Robert J. Marine platforms. 3,739,737, Cl. 114-.50d.

Bailey, John R., to Senturion Sciences, Inc. Mapping of earth fractures induced by hydrafracturing. 3,739,871, Cl. 181-.5np.

Bainbridge, Wilfred Nicholas, to Automotive Products Company Limited. Telescopic position adjusting devices. 3,739,885, Cl. 188-300.000.

Baisch, J. Carroll: *See—*
Grossman, Milton J., 3,740,035.

Baker, Donald Brooks, to Bird Machine Company, Inc. Cleaning apparatus for materials moving in endless path. 3,739,605, Cl. 68-20.000.

Baker Perkins, Inc.: *See—*
Ingram, Charles E.; and Elson, Ronald D., 3,739,902.

Baker Perkins Limited: *See—*
Miarkowski, Dzeslaw; and Smith, Edward Leslie, 3,739,721.

Baker, Philip G.; Bennett, Stewart; and Young, Richard W., to Polaroid Corporation. Projector apparatus. 3,740,127, Cl. 352-72.000.

Baker, Ralph F., to Rohr Industries, Inc. Quick release, toggle latching, spring clip for hold-open prop. 3,739,435, Cl. 24-257.00r.

Baker, Roger E.: *See—*
Banks, Robert B.; and Baker, Roger E., 3,740,586.

Baldwin, Samuel L.: *See—*
Franklin, John S.; and Baldwin, Samuel L., 3,740,545.

Ballard, Denis George Harold; Heap, Nicholas; Jones, Eric; Kilbourn, Barry Tarbatt; and Wyatt, Ronald John, to Imperial Chemical Industries Limited. Polymerisation of mono-olefins with an organometallic zirconium complex-1,1,3,3-tetraphenylsiloxane-1,3-dio catalyst. 3,740,384, Cl. 260-94.90c.

Ballard, James L., to General Electric Company. Refrigeration system including head pressure control means. 3,739,596, Cl. 62-158.000.

Ballart Vedam Groep N.V.: *See—*
Van Zeggelaar, Gerrit Hendrik, 3,740,533.

Ballou, Richard P., to General Motors Corporation. Two-relay automotive vehicle signaling system. 3,740,714, Cl. 340-67.000.

Ban, Yasujiro. Method of continuously manufacturing a plurality of sheet records in a process. 3,740,286, Cl. 156-219.000.

Banks, Robert B.; and Baker, Roger E., to Electro Development Corporation. Pulse with DC converter compensating for pulse repetition rate changes. 3,740,586, Cl. 307-229.000.

Banzano, Giorgio, to Honeywell Information Systems Italia S.p.A. Apparatus for controlling the feeding of paper in high-speed printers. 3,740,634, Cl. 318-345.000.

Barbier, Pierre Roger, to Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France. Protection of the colon of mammals during treatment with antibiotics by simultaneous administration of nystatin and torulopsis tropsis. 3,740,423, Cl. 424-93.000.

Barbour, William P., to Control Data Corporation. Traveling cylinder imprinter with wheel-centering means and cylinder-locking means for variable data input. 3,739,716, Cl. 101-45.000.

Bard, C. R., Inc.: *See—*
Monestere, Martin, Jr.; and Pronier, Frederick, 3,739,778.

Barker, George P.; and McKay, Cameron E. Hydriulic dredge having articulated ladder and swell compensator. 3,739,503, Cl. 37-67.000.

Barko Hydraulics, Inc.: *See—*
Bartell, Maurice J., 3,739,823.

Barnes, William A., to Robertson, H. H., Company. Aircraft hangar. 3,739,537, Cl. 52-64.000.

Barnett, Morris A.: *See—*
Schinnerer, Roy L.; Silver, Alexander; Sladek, Leonard T.; and Barnett, Morris A., 3,740,163.

Baron, Stanley N., to Columbia Broadcasting System. Character generating apparatus for television tilting. 3,740,743, Cl. 340-324.00a.

Barrett, John P., Jr. Footwear article and method for facilitating walking. 3,739,501, Cl. 36-11.500.

Barsukov, Mikhail Ivanovich: *See—*
Bogrets, German Nikolaevich; Bondar, Nikolai Pavlovich; Sizonenko, Grigory Alexandrovich; Minakov, Anatoly Gavrilovich; Barsukov, Mikhail Ivanovich; Mitkevich, Grigory Iosifovich; Dudkin, Vyacheslav Fedorovich; Teslya, Andrei Mikhailovich; and Kolomiets, Nkolai Emelyanovich, 3,740,207.

Bartell, Maurice J., to Barko Hydraulics, Inc. Device for cutting tree stumps. 3,739,823, Cl. 144-2.00n.

Bartles, Alfred; Drews, Jurgen; and Pinkerneil, Gunther, to Nordischer Maschinenbau Rud. Baader. Skinning machine for fish fillets. 3,739,428, Cl. 17-62.000.

Barzynsci, Helmut; and Krauch, Carl Heinrich, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Photosensitive compositions for the production of printing plates. 3,740,224, Cl. 96-33.000.

BASF Wyandotte Corporation: *See—*
Schmolka, Irving R., 3,740,421.

Bash, Ignatius F.: *See—*
McKeegan, James J.; Cheney, Oliver F.; and Bash, Ignatius F., 3,740,759.

Baso, Miklos; and Wiessner, Edgar, to Siemens Aktiengesellschaft. Frame for mounting electrical equipment. 3,740,614, Cl. 317-99.000.

Bates, David J.: *See—*
Silzars, Aris; and Bates, David J., 3,740,607.

Bateson, George F.: *See—*
Montgomery, Rex; Bateson, George F.; Corcoran, John D.; and Krbechek, Le Roy O., 3,740,388.

Bateson, Sydney: *See—*
Kappes, Karl A.; and Bateson, Sydney, 3,740,243.

Battige, James G.: *See—*
Von Alten, Theodor; Peebles, Gerald L.; and Battige, James G., 3,740,289.

Battistoni, Richard B.; Ferreri, Vincent; and Gates, George A., to International Business Machines Corporation. Left zero circuit for key entry device. 3,740,726, Cl. 340-172.500.

Bauerle, Mathias, GmbH: *See—*
Schinke, Heinz Joachim; and Lehmann, Werner, 3,740,531.

Baum, Jesse J. Direct reduction apparatus. 3,740,042, Cl. 266-9.000.

Baum, Melvin E.; and Hatton, John A., Jr., to Koppers Company, Inc. Chemically thickened polyester resin. 3,740,372, Cl. 260-40.00r.

Baumann, Erwin; and Beham, Gerhard, to Storing and mixing receptacle. . 3,739,947, Cl. 222-136.000.

Baumel, Anton, to Bohler & Company. Process of making fully austenitic welded joints which are insusceptible to hot cracking. 3,740,525, Cl. 219-137.000.

Baxley, James R., to Peanut Research & Testing Laboratories, Inc. Partially defatted nut coating and reconstituting process. 3,740,236, Cl. 99-126.000.

Bayer Aktiengesellschaft: *See—*
Hederich, Volker; Gehrke, Gunter; Neef, Rutger; and Wegner, Peter, 3,740,186.
Neufang, Karl; Kuth, Robert; Neef, Rutger; and Breidbach, Gunter, 3,740,185.
Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, 3,740,209.

Bays, Fernand, to Vidosa S.A. Apparatus for removing sheets from stacks. 3,740,029, Cl. 271-11.000.

Bean, Kenneth E., to Texas Instruments, Incorporated. Multi-component semiconductor network and method for making same. 3,740,276, Cl. 148-175.000.

Beard, Thomas Noble, to Shell Oil Company. Method of producing oil from an oil shale formation. 3,739,851, Cl. 166-254.000.

Beauchet, Jean, to Societe Nouvelle de Roulements. Apparatus for machining bodies of revolution having a circular generatrix. 3,739,530, Cl. 51-105.00r.

Beausoleil, William F.; Ho, Irving T.; and Pricer, Wilbur D., to International Business Machines Corporation. Integral hierarchical binary storage element. 3,740,723, Cl. 340-172.500.

Bebinger, Jack E., to Westinghouse Electric Corporation. Securing means for disposer sound jacket. 3,739,992, Cl. 241-46.00b.

Bechler, Vernon D.: *See—*
Sawyer, Harold T., 3,739,417.

Bedell, John R.: *See—*
Engdahl, Richard E.; and Bedell, John R., 3,740,592.

Bedford, Beryl A. Automatic switch for slaughterhouse and meat packer rails. 3,739,727, Cl. 104-103.000.

Beehive Machinery Inc.: *See—*
McFarland, Archie Rae, 3,739,994.

Beeley, Michael G.: *See—*
Maez, Philbert Jay; Thompson, Richard D.; and Beeley, Michael G., 3,739,960.

Beer, Bernard: *See—*
Clody, Donald E.; Beer, Bernard; Vogel, John; and Horovitz, Zula P., 3,740,433.

Beer, Heinz: *See—*
Olsen, Willi; and Beer, Heinz, 3,740,508.

Beham, Gerhard: *See—*
Baumann, Erwin; and Beham, Gerhard, 3,739,947.

Behles, Guy. Concealment of cameras for observational purposes. 3,739,703, Cl. 95-15.000.

Behrenz, Wolfgang: *See—*
Hoffmann, Hellmut; Behrenz, Wolfgang; and Hammann, Ingeborg, 3,740,427.

Beilin, Solomon Isaakovich: *See—*
Dolgoplosk, Boris Alexandrovich; Tinyakova, Elena Ivanovna; Beilin, Solomon Isaakovich; Makovetsky, Kirill Lvovich; Chernenko, Galina Moiseevna; Ostrovskaya, Irina Yakovlevna; Krol, Vladimir Alexandrovich; and Khrennikova, Elena Konstantinovna, 3,740,382.

Beispel, Robert: *See—*
Wolf, Margery S.; and Beispel, Robert, 3,740,140.

Bel Fuse Inc.: *See—*
Bernstein, Howard, 3,740,673.

Belin, Marcel Andre. Floating barrier for circumscribing oil pools or like refuse. 3,739,584, Cl. 61-1.00f.

Bell, George V., to Peyrolle Hydraulics Limited. Swashplate and like hydraulic machines. 3,739,692, Cl. 91-506.000.

Bell, Gregory E., to General Motors Corporation. System for encouraging use of seat belts in a motor vehicle. 3,740,711, Cl. 340-52.00e.

Bell, Gunter: *See—*
Wehner, Karl-Heinz; Watermann, Willy; and Bell, Gunter, 3,739,586.

Bell Telephone Laboratories, Incorporated: *See—*
Atal, Bishnu Saroop, 3,740,476.
Cohen, Melvin Irwin; and Fulton, Alan William, 3,740,523.
D'Asaro, Lucian A., 3,740,661.
Freimanis, Laimons, 3,740,486.
Greber, Isaac, 3,739,814.
Krupp, Roy Stephen; and Tomko, Lawrence Andrew, 3,740,480.
Laggy, William Joseph; and May, Harold Frederick, 3,740,484.
Maldonado, Juan Ramon, 3,740,734.
McAlonie, Robert Francis; Sautter, Helmuth Otto; and Trimble, David Carlaw, 3,740,490.
Pedersen, Thomas Josef, 3,740,483.

Bell, Walter; and Eager, William A., to Star Expansion Industries Corporation. Milling machine having a plurality of milling stations. 3,739,688, Cl. 90-21.00r.

Bellinder, George, 50% to Roth, Harold A. Carton strapping-assist device. 3,740,046, Cl. 269-3.000.

Bellinger, Lawrence S.; and Parker, John C., to Technicon Instruments Corporation. Flow cell. 3,740,158, Cl. 356-246.000.

Beloit Corporation: *See—*
Cronin, Dennis C., 3,740,312.
York, Raymond A., 3,739,958.

Bendix Corporation, The: *See—*
Compoly, Albert W.; and Kautz, Robert F., 3,740,583.
Doniger, Jerry; Morse, Carson; and Knemeyer, Siegfried, 3,740,004.

Hanusek, Frank A.; and Galuschak, George, 3,739,480.
Hoffman, Gary Robert, 3,740,670.
Marom, Emanuel, 3,740,749.
O'Connor, Bernard J.; and De Carlo, Frank S., 3,739,646.
Strole, John C.; Szerenyi, Laszlo I.; and Moreines, Harold, 3,740,653.

Benjamin, John Stanwood: *See—*
Bomford, Michael James; and Benjamin, John Stanwood, 3,740,210.

Bennett, Stewart: *See—*
Baker, Philip G.; Bennett, Stewart; and Young, Richard W., 3,740,127.

Benson, Bengt Anders. Perception apparatus for the blind. 3,740,446, Cl. 35-35.00a.

Benson, William H., to Eriez Manufacturing Company. Electromagnetic turnoff system for permanent magnets. 3,740,683, Cl. 335-284.000.

Bentley, Alone M.; and Wilson, Laurie A. Wig tote. 3,740,013, Cl. 248-224.000.

Bentley, Floyd Edward; and Godfrey, Norman Bell, to Jefferson Chemical Company, Inc. Epoxy resin composition containing a polyoxyalkylene, substituted piperazine, salicylic acid and a phenol. 3,740,373, Cl. 260-47.0ec.

Berg, Bengt, to Aktiebolaget Svenska Flaktfabriken. Procedure for drying of cellulose. 3,739,482, Cl. 34-12.000.

Berg Manufacturing Company, The: *See—*
Horowitz, Charles, 3,740,106.

Berger, Wolfgang, to Bohme, Dr. Th., Kg. Chem. Fabrik. Dyeing composition. 3,740,345, Cl. 252-355.000.

Bergerron, Alfred L., to Pneumatic Scale Corporation. Valve inserting device for aerosol containers. 3,739,449, Cl. 29-208.00b.

Berghof, Ernest H., to Anna Welding Corporation. Apparatus for arc welding. 3,740,518, Cl. 219-50.000.

Bergisch, Gunther Kolf: *See—*
Wolff, Erich; Lassig, Wolfgang; Seelig, Eckart; and Bergisch, Gunther Kolf, 3,740,376.

Bergwerksverband GmbH: *See—*
Kruel, Martin; Zurawsky, Dieter; and Juntgen, Harald, 3,739,550.

Berkelhammer, Gerald; and Gastrock, William Henry, to American Cyanamid Company. Conversion of heteroaromatic methyl compounds to nitriles. 3,740,400, Cl. 260-250.00r.

Berkelhammer, Gerald; and Asato, Goro, to American Cyanamid Company. Substituted nitroimidazolylthiadiazoles and oxadiazoles as antiprotozoal agents. 3,740,434, Cl. 424-267.000.

Berkey Technical: *See—*
Weisglass, Louis L., 3,740,135.

Bernardin, Leo J., to Kimberly-Clark Corporation. Absorbent fibers of phosphorylated cellulose with ion exchange properties and catamenial tampons made therefrom. 3,739,782, Cl. 128-285.000.

Bernstein, Howard, to Bel Fuse Inc. Bi-filar delay line. 3,740,673, Cl. 333-29.00r.

Berry, Holland J.; and Lewis, David W., to Sun Oil Company. Wellbore safety valve. 3,739,845, Cl. 166-65.00r.

Berry, Robert J.; and Dubois, Chester G., to Outboard Marine Corporation. Starter and shift interlock. 3,739,763, Cl. 123-179.00k.

Berti, Jerome L.: *See—*
Patchen, Paul J.; and Berti, Jerome L., 3,739,657.

Beson, John, to Rockwell Manufacturing Company. Head to hanger hydraulic connection. 3,739,846, Cl. 166-89.000.

Bestenreiner, Friedrich; Deml, Reinhold; and Helmberger, Josef, to Agfa-Gevaert Aktiengesellschaft. Apparatus for simultaneous reproduction of images of selected superimposed pictures. 3,740,464, Cl. 178-6.800.

Beyerle, Rudi; Nitz, Rolf-Eberhard; Resag, Klaus; Schraven, Eckhard; and Stachel, Adolf; deceased (by Stachel, Inge; and Stachel, Sophie; heirs), to Cassella Farbwerke Mainkur Aktiengesellschaft. Basically substituted 2,4-(1H,3H)-quinazolindione derivative. 3,740,398, Cl. 260-247.20a.

Beyerlein, David G.: *See—*
Sweet, Douglas W.; and Beyerlein, David G., 3,740,103.

Bhagat, Gopel C., to Xerox Corporation. Method of preparing a toner dispenser. 3,740,288, Cl. 156-275.000.

Bickford, Allan M.; and Czajka, Ronald J., to Sweatman, Fraser, Inc. Continuous flow anesthesia apparatus. 3,739,799, Cl. 137-88.000.

Biglow, James W.: *See—*
Hall, James M. Mars; and Biglow, James W., 3,740,466.

Bilas, Michael. Vehicle suspension. 3,740,071, Cl. 280-124.00r.

Bilbao, Francisco. Clothes iron rest for ironing boards. 3,739,507, Cl. 38-107.000.

Bilhorn, John M., to ESB Incorporated. Duplex electrode construction using continuous metal carrier strip coated on both sides with conductive adhesive. 3,740,270, Cl. 136-111.000.

Bird, Forrest M.; and Pohndorf, Henry L. Fail-safe breathing circuit and valve assembly for use therewith. 3,739,776, Cl. 128-145.800.

Bird Machine Company, Inc.: *See—*
Baker, Donald Brooks, 3,739,605.

Bishop, Jerlad W. Expansion fastening device. 3,739,683, Cl. 85-70.000.

Bivator S.A., mesne: *See—*
Adler, Karl; and Docommun, George, 3,740,273.

Bizerha-Werke Wilhelm Krant KG: *See—*
Muller, Ernst; Maurer, Albrecht; and Logan, Arthur D., 3,739,677.

Bizzoco, Michael D., to Tork Time Controls, Inc. Irrigation control system timing device for controlling watering cycle of a plurality of watering zones. 3,740,575, Cl. 307-141.400.

Blagg, Charles D., to General Motors Corporation. Articulated filling and dispensing ladle mechanism. 3,739,954, Cl. 222-357.000.

Blaich, Emil; and Niemann, Gert, to Bosch, Robert, G.m.b.H. Battery in molded case and cover with electrolyte reservoir in cover common to all cells. 3,740,272, Cl. 136-162.000.

Blancs Mineraux de Paris: *See—*
Sarrade-Loucheur, Jacques, 3,740,346.

Bland, Aubrey M.; and Zimmermann, Vincent H., to McDonnell Douglas Corporation. Propulsion system control. 3,739,580, Cl. 60-204.000.

Blatherwick, Delbert T., to Acti Products, Inc. Camera carriage precision positioning system. 3,739,479, Cl. 33-125.000.

Blatherwick, Delbert T., to Acti Products Inc. Process camera alignment and exposure system. 3,740,138, Cl. 355-73.000.

Bleil, Carl E.: *See—*
Burley, Harvey A.; Bleil, Carl E.; Rishavy, Edward A.; and Currie, James H., 3,739,753.

Bletcher, Pearl: *See—*
Bucknell, Ernest H.; Rauh, Jack K.; and Radecki, Tony, 3,739,806.

Bletcher, Ralph E.: *See—*
Bucknell, Ernest H.; Rauh, Jack K.; and Radecki, Tony, 3,739,806.

Bletcher, Richard J.: *See—*
Bucknell, Ernest H.; Rauh, Jack K.; and Radecki, Tony, 3,739,806.

Bliss, Jon P. Rock picker. 3,739,855, Cl. 171-63.000.

Bobier, Wilfred S. Fluid device. 3,739,691, Cl. 91-506.000.

Boborykin, Jury Alexandrovich; and Kurkin, Jury Georgievich. Device for shearing metal sections. 3,739,962, Cl. 225-102.000.

Bode, Klaus-Dieter; Schroeder, Josef; and Schellhammer, Carl-Wolfgang, to Farbenfabriken Bayer Aktiengesellschaft. Styryl compounds. 3,740,393, Cl. 260-240.00d.

Boden, Peter Standidge, to Kent Instruments Limited. Vector force-balancing mechanisms. 3,739,655, Cl. 74-469.000.

Bodendoerfer, Raymond E., to Paper Machinery Corporation. Registration control timing switch for web-processing machine. 3,739,968, Cl. 226-30.000.

Bodine, Albert G. Inductive cavitator. 3,740,028, Cl. 259-72.000.

Boehringer Ingelheim GmbH: *See—*
Heider, Joachim; Nickl, Josef; Eberlein, Wolfgang; Kobinger, Walter; and Dahms, Gerhard, 3,740,390.
Koppe, Herbert; Engelhardt, Albrecht; Ludwig, Gerhard; and Zeile, Karl, 3,740,443.
Koppe, Herbert; Engelhardt, Albrecht; and Zeile, Karl, 3,740,444.
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; and Stockhaus, Klaus, 3,740,401.

Boeing Company, The: *See—*
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Boesten, Wilhelmus H. J.: *See—*
Dahlmans, Johannes J.; and Boesten, Wilhelmus H. J., 3,740,386.

Bogosh, Donald. Speedometer drives. 3,739,653, Cl. 74-424.500.

Bogosian, Theodore Oscar, to Johns-Manville Corporation. Device for fencing and absorbing contaminating oil spills on water. 3,739,913, Cl. 210-242.000.

Bogrets, German Nikolaevich; Bondar, Nikolai Pavlovich; Sizonenko, Grigory Alexandrovich; Minakov, Anatoly Gavrilovich; Barsukov, Mikhail Ivanovich; Mitkevich, Grigory Iosifovich; Dudkin, Vyacheslav Fedorovich; Teslya, Andrei Mikhailovich; and Kolomiets, Nkolai Emelyanovich. Shaped products from thermoplastic material. 3,740,207, Cl. 65-67.000.

Bohler & Company: *See—*
Baumel, Anton, 3,740,525.

Bohme, Dr. Th., Kg. Chem. Fabrik: *See—*
Berger, Wolfgang, 3,740,345.

Bolin, Stephen Ray, to RCA Corporation. Modified czochralski grown spinel substrate by solid state diffusion. 3,740,261, Cl. 117-107.20p.

Bomford, Michael James; and Benjamin, John Stanwood, to International Nickel Company, Inc., The. Mechanically-alloyed aluminum-aluminum oxide. 3,740,210, Cl. 75-.5ac.

Bondar, Nikolai Pavlovich: *See—*
Bogrets, German Nikolaevich; Bondar, Nikolai Pavlovich; Sizonenko, Grigory Alexandrovich; Minakov, Anatoly Gavrilovich; Barsukov, Mikhail Ivanovich; Mitkevich, Grigory Iosifovich; Dudkin, Vyacheslav Fedorovich; Teslya, Andrei Mikhailovich; and Kolomiets, Nkolai Emelyanovich, 3,740,207.

Borden, Inc.: *See—*
Stine, Orrin Burr, 3,739,964.

Borg-Warner Corporation, mesne: *See—*
Ulbing, Otmar M., 3,740,172.

Borgese, Domenic; and Borgese, Frances. Burglar alarm system for automotive vehicles and the like. 3,740,712, Cl. 340-63.000.

Borgese, Frances: *See—*
Borgese, Domenic; and Borgese, Frances, 3,740,712.

Borgs Fabriks Aktiebolag: *See—*
Myhr, Lars H.; and Svensson, Lars-Ake E., 3,739,884.

Bosch, Robert, G.m.b.H.: *See—*
Blaich, Emil; and Niemann, Gert, 3,740,272.
Cub, Fritz; Kleinert, Paul; Lammermann, Heinz; and Schacht, Hans, 3,739,916.

Knapp, Heinrich; Schwartz, Reinhard; and Eckert, Konrad, 3,739,758.
Schwerin, Gunther, 3,740,102.
Bosch, Robert, Photokino G.m.b.H.: *See—*
Wilharm, Treo, 3,740,146.
Botta, Lilly U.: *See—*
Alberici, Gisele M.; Botta, Lilly U.; and Jahrens, Henry W., 3,739,437.
Boudeman, Robert J., to Wells Manufacturing Corporation. Portable, light-weight fruit gathering device. 3,739,561, Cl. 56-329.000.
Bougiouris, Evangelos, to Sagarian, John. Machine forming teeth at both faces and the periphery of a rotary blank. 3,739,687, Cl. 90-15.10r.
Bowman-Shaw, George Neville, to Lancer Boss Limited. Side loaders. 3,739,931, Cl. 214-670.000.
Boyles Industries, Limited: *See—*
Wolda, Tiete O., 3,739,865.
Boyles, Robert L.; and Polonsky, Samuel, to General Electric Company. Electric alarm clock timer with manually operable reset mechanism. 3,740,502, Cl. 200-38.0fa.
Boysen, Gerd C.; and Freitag, Lawrence F., to Bradley, Allen, Company. Pilot light assembly for circuit card mounting device. 3,740,546, Cl. 240-52.100.
BP Chemicals Limited: *See—*
Sturt, Alan Charles; and Feast, Guildford Alan Arthur John, 3,740,368.
Bradley, Allen, Company: *See—*
Boysen, Gerd C.; and Freitag, Lawrence F., 3,740,546.
Brady, Clifford H. Speed responsive switch. 3,740,505, Cl. 200-61.530.
Brady, James J., to Technical Oil Tool Corporation. Apparatus for driving a recording instrument. 3,739,888, Cl. 192-48.920.
Brase, Roy J. Instrument for isolating rows of printed matter for reading. 3,739,739, Cl. 116-119.000.
Brauer, Alfred: *See—*
Scanlon, Joseph C.; Brauer, Alfred; Carvalho, Robert; and Ellis, Cecil B., 3,740,559.
Braun, Vernon F.: *See—*
Wilhelmson, Jack L.; Weichselbaum, Theodore B.; and Braun, Vernon F., 3,739,943.
Bray, Donald T., to Desalination Systems, Inc. Water purification system for small reverse osmosis unit with integral blowdown water disposal. 3,740,330, Cl. 210-23.000.
Breant, Pierre Louis Vincent; David, Guy Albert Jules; Pares, Francois; and Grima, Jean-Claude, to U.S. Philips Corporation. Pseudo-random multiplex synchronizer. 3,740,478, Cl. 179-15.0bs.
Bredimus, Robert L.: *See—*
Miller, Henry F.; and Bredimus, Robert L., 3,739,632.
Breeding, Terry G.: *See—*
Hoyt, Michael T.; Junker, Bernhard T.; Hedrick, Ross M.; and Breeding, Terry G., 3,740,177.
Breidbach, Gunter: *See—*
Neufang, Karl; Kuth, Robert; Neef, Rutger; and Breidbach, Gunter, 3,740,185.
Brenner, E. Martin; and Loev, Bernard, to Smith Kline & French Laboratories. 2-Amino(and 2-aminomethyl)-2-heterocyclic-thioacetamides. 3,740,409, Cl. 260-294.80e.
Brevko, Robert; Viviano, Peter; Rudman, Regis M.; and Adams, Lawrence D., to Auburn Engineering, Inc. Shrink-wrapping method and apparatus. 3,739,547, Cl. 53-182.000.
Bridg-A-Back Inc.: *See—*
Bridger, Gordon B., 3,740,096.
Bridger, Gordon B., to Bridg-A-Back Inc. Orthopedic seat. 3,740,096, Cl. 297-459.000.
Bridgestone Tire Company, Limited: *See—*
Iida, Yoshihiko; and Goto, Yasushi, 3,739,533.
Bristol-Myers Company: *See—*
Keldmann, Erik; and Johansen, Geni G., 3,739,787.
Keldmann, Erik, 3,739,788.
British Iron and Steel Research Association: *See—*
Uemlianin, Andray, 3,740,044.
Brocklehurst, Peter John; Hemingway, Eric; and Wright, Malcolm James, to Imperial Chemical Industries Limited. Manufacture of bis (alkoxyamino-triazinylamino)-stilbene-2-,2'-disulphonic acids. 3,740,341, Cl. 252-301.20w.
Brody, Norman M., to Norman Industries, Inc. Decorative lamp. 3,740,542, Cl. 240-10.00f.
Broerman, Arthur B. Male urinal device. 3,739,783, Cl. 128-295.000.
Bromer, Heinz; Meinert, Norbert; and Preuss, Hans-Jurgen, to Leitz, Ernst. Silver activated phosphate glass batched with nitrite. 3,740,241, Cl. 106-47.00r.
Brondum, Hazel: *See—*
Bucknell, Ernest H.; Rauh, Jack K.; and Radecki, Tony, 3,739,806.
Brooks, Elgin C., to Helb, Inc. Portable clothes dryer. 3,739,492, Cl. 34-163.000.
Brousseau, Real: *See—*
Ruel, Maurice; Janssens, Jean-Marie; and Brousseau, Real, 3,739,639.
Brown & Root, Inc.: *See—*
Jones, Raymond E., 3,739,591.
Plake, William Edgar, 3,739,592.
Brown, Boveri Sulzer Turbomachinery, Limited: *See—*
Zerlauth, Ferdinand, 3,740,164.
Brown, Charles P.; and Eggleton, Derwin R., to Riggs & Lombard, Inc. Wire printing apparatus having closed inking system. 3,739,717, Cl. 101-37.000.
Brown, Donald D., to Kelsey-Hayes Company. Electric brake controller. 3,740,691, Cl. 338-39.000.
Brown, Harold H. Apparatus for adhering a cue tip to a billiard cue or the like. 3,740,295, Cl. 156-499.000.
Brown, Reed M., III; and Stoltman, Donald D., to General Motors Corporation. Carburetor with power choke. 3,740,040, Cl. 261-23.00a.
Brudette, George W.; and Couch, Dean H., to United States of America, Navy. Method for measuring liquid propellant stability. 3,739,626, Cl. 73-16.000.
Bruggeman, Frans, to N.V. Bekaert S.A. Fencing. 3,740,023, Cl. 256-24.000.
Brumbaugh, Philip A.; and Harrington, Richard H., to International Business Machines Corporation. Carriage indexing mechanism. 3,739,899, Cl. 197-82.000.
Bruno, Leonard, to Shore Plastics, Inc. Tamper-proof bottle closure. 3,739,934, Cl. 215-9.000.
Brunswick Corporation: *See—*
Sleder, Richard L., 3,739,759.
Brusca, Donald R.: *See—*
Li, Norman N.; Mohan, Raam R.; and Brusca, Donald R., 3,740,315.
Brych, Alfred: *See—*
Jammet, Jean-Firmin; and Brych, Alfred, 3,740,271.
Bryla, Theodore N.: *See—*
Poulin, Clyde J.; and Bryla, Theodore N., 3,740,277.
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Aldridge, Clyde L.; Buben, David; and Goldberg, Ronald S., 3,740,193.
Buckley, Norman A.; and Rasmussen, Peter D., to McGraw-Edison Company. Steam air cabinet finisher. 3,739,496, Cl. 34-210.000.
Bucknell, Ernest H.: *See—*
Bucknell, Ernest H.; Rauh, Jack K.; and Radecki, Tony, 3,739,806.
Bucknell, Ernest H.; Rauh, Jack K.; and Radecki, Tony, 10% to Bletcher, Ralph E., 5% to Robertson, Frederick, 5% to Robertson, Gary, 10% to Bucknell, Lenora, 10% to Bletcher, Richard J., 15% to Liston, Marcia, 5% to Liston, Carol A., 5% to Liston, James H. 10% to Brondum, Hazel, 10% to Bletcher, Pearl, 5% to Liston, Marcia, as trustee for, Liston, Daniel E. and 10% to Bucknell, Ernest H. Diaphragm spout assembly. 3,739,806, Cl. 137-359.000.
Bucknell, Lenora: *See—*
Bucknell, Ernest H.; Rauh, Jack K.; and Radecki, Tony, 3,739,806.
Buczer, Carl J.: *See—*
Freiberg, Robert J.; and Buczer, Carl J., 3,740,664.
Buescher, Theodore H., to Kraftco Corporation. Decorative plate display device. 3,740,016, Cl. 248-488.000.
Buhler, Warren G.; and Maltesky, Albert, to Oxy-Dry Sprayer Corporation. Anti-offset powder. 3,740,248, Cl. 117-13.000.
Bullard, Martin Blythe. Soldering apparatus for saw cutting teeth. 3,740,521, Cl. 219-85.000.
Bulova Watch Company, Inc.: *See—*
Van Haaften, Egbert, 3,739,568.
Bump, Edward L.: *See—*
Jespersen, Paul W.; and Bump, Edward L., 3,739,965.
Bunnell, John A.: *See—*
Goldsworthy, William B.; and Bunnell, John A., 3,740,285.
Bunten, Theodore M., to Repco Products Corporation. Pedestals for electrical circuit components. 3,740,452, Cl. 174-38.000.
Burgener, Willis R., to Monsanto Company. Signal selector circuit. 3,740,652, Cl. 328-137.000.
Burger Chef Systems, Inc.(BC): *See—*
Duning, Roland L., 3,739,712.
Burgess, Bernard W.: *See—*
Liebergott, Norman; Clayton, David W.; and deMontigny, Raimbault M. A. T., 3,740,311.
Burk, David L.; and Reen, Orville W., to Allegheny Ludlum Industries, Inc. Method for producing a hot worked body. 3,740,215, Cl. 75-208.000.
Burley, Harvey A.; Bleil, Carl E.; Rishavy, Edward A.; and Currie, James H., to General Motors Corporation. Rotary combustion engine ignition. 3,739,753, Cl. 123-8.090.
Buss, David R.: *See—*
Churchill, Bruce W.; Steel, Robert; and Buss, David R., 3,740,318.
Butane Match A.G.: *See—*
Piffath, Rodney S.; and Cole, John J., 3,740,183.
Butler, James M.; and Simmons, Gerald P., to Westinghouse Air Brake Company. Vehicle suspension system. 3,740,070, Cl. 280-104.50r.
Butler Manufacturing Company: *See—*
Christie, Howard W.; and Byerley, Thomas J., 3,740,358.
Butler, Walter J.; Puckette, Charles M.; and Smith, Donald A., to General Electric Company. Bucket-brigade tuned sampled data filter. 3,740,591, Cl. 307-295.000.
Buttafava, Pietro, to Honeywell Information Systems Italia S.p.A. Frequency-to-voltage converter device. 3,740,633, Cl. 318-328.000.
Byerley, Thomas J.: *See—*
Christie, Howard W.; and Byerley, Thomas J., 3,740,358.
Cafe-Bar International Pty., Ltd.: *See—*
Scholer, Mervyn Garnet, 3,739,946.
Cahill, Robert F.: *See—*

Weintraub, Arthur; Kalina, Henry A.; and Cahill, Robert F., 3,740,710.

Cairns, Gordon J.; and Harrison, Marquerite D. Combined dispensers and canisters. 3,739,935, Cl. 220-23.400.

Caldwell, Roland B., to Ranco-Incorporated. Control apparatus for exhaust gas recirculating system. 3,739,797, Cl. 137-85.000.

Caldwell, Samuel I.; and Cline, Lawrence R., to Caterpillar Tractor Company. Swing transmission for excavators. 3,739,652, Cl. 74-421.00a.

Call, Ludwig: *See—*
Ullman, Edwin F.; Call, Ludwig; Leute, Richard K.; and Osiecki, Jeanne H., 3,740,412.

Callaghan, John David; and Wilson, Robert Morris, to RCA Corporation. Adapter for coaxial cable connector. 3,740,453, Cl. 174-75.00c.

Cameron, Bruce M. Athletic shoe. 3,739,497, Cl. 36-2.5ag.

Cameron, Frank L., to Westinghouse Electric Corporation. Current limiting fuse. 3,740,687, Cl. 337-233.000.

Campbell, Craig C., to Mobil Oil Corporation. Pesticidal compositions. 3,740,419, Cl. 424-21.000.

Campbell, Eric C., to Wescor, Inc. Psychrometer and method. 3,739,629, Cl. 73-77.000.

Canadian Char-Co., Khar-Co., Ltd.: *See—*
Hurson, Frank W., 3,739,558.

Canadian Patents and Development Limited: *See—*
Vankoughnett, Allan L., 3,740,515.

Canon Kabushiki Kaisha: *See—*
Komori, Shigehiro; Sato, Jiro; and Hattori, Hiroyuki, 3,740,132.
Komori, Shigehiro; Sato, Jiro; and Hattori, Hiroyoki, 3,740,133.
Sato, Jiro, 3,740,137.

Cantarutti, Armindo: *See—*
Jones, Thomas C.; and Cantarutti, Armindo, 3,740,293.

Carborundum Company, The: *See—*
Marin, Glenn R., 3,739,883.

Card, George; Luckins, John; and Tidmarsh, Elles Joseph, to IPC Services Limited. Book-binding and machines therefor. 3,739,412, Cl. 11-5.000.

Cargill Incorporated: *See—*
Kaufmann, Henry H., 3,739,893.

Carl, David G.; Kietzman, Richard C.; and Knapp, William A. Masking the closeable area of a container during coating of the container. 3,740,259, Cl. 117-94.000.

Carleson, Margery P. Home protection system employing barking dog tape. 3,740,737, Cl. 340-221.00r.

Carley, Donald Raymond, to RCA Corporation. Transistor employing variable resistance ballasting means dependent or the magnitude of the emitter current. 3,740,621, Cl. 317-235.00r.

Carlson, Edwin S., to Union Tank Car Company. Jacket flashing. 3,739,729, Cl. 105-358.000.

Carlson, Elmer Victor; and Killion, Mead Clifford, to Industrial Research Products, Inc. Diaphragm assembly for electret transducer. 3,740,496, Cl. 179-111.00e.

Carlsson, Per Arvid Emil; Corrodi, Hans Rudolf; Florwall, Gosta Lennart; and Ross, Svante Bertil, to Aktiebolaget Astra. Method for inhibiting dopamine-β-hydroxylase using piperazine derivatives of dithiocarboxylates, and pharmaceutical preparations thereof. 3,740,430, Cl. 424-250.000.

Carnes, Lyle L., to Tenneco Inc. Lift seam retaining means. 3,740,020, Cl. 254-134.000.

Carreau, David W.; Fahlman, Aake T.; and Dawsin, Joseph H., Jr., to General Dynamics Corporation. Mooring system for drilling hull in arctic waters. 3,739,736, Cl. 114-.50d.

Carrier Corporation: *See—*
Wright, William; and Mathewson, Myron, 3,739,666.

Carstens, Heinz Peter. Photographic processor. 3,739,706, Cl. 95-89.00d.

Cartwright, Cyril A.: *See—*
Lane, George C.; Cartwright, Cyril A.; and Elmslie, Keith W., 3,740,327.

Carvalho, Robert: *See—*
Scanlon, Joseph C.; Brauer, Alfred; Carvalho, Robert; and Ellis, Cecil B., 3,740,559.

Caset, Gerald E., to Fema Corporation. Permanent-electromagnetic reciprocating device. 3,740,594, Cl. 310-30.000.

Cason, George Acker, Jr.; and Simmons, James Wesley, to Dresser Industries, Inc. Pressure equalizing system for rock bits. 3,739,864, Cl. 175-228.000.

Cass, Michael, to Imperial Chemical Industries, Limited. Light guide. 3,740,113, Cl. 350-96.00r.

Casella Farbwerke Mainkur Aktiengesellschaft: *See—*
Beyerle, Rudi; Nitz, Rolf-Eberhard; Resag, Klaus; Schraven, Eckhard; and Stachel, Adolf, 3,740,398.

Cataneo, Ralph J.; and Fotiu, Eustace, to Pfizer, Inc. Brush applicator. 3,739,789, Cl. 132-88.700.

Caterpillar Tractor Company: *See—*
Caldwell, Samuel I.; and Cline, Lawrence R., 3,739,652.
Cryder, John R., 3,739,690.
Hicks, Leon E.; and Jessen, Henry J., 3,739,505.
Johnson, Harold M.; and Hendrickson, Vergil P., 3,739,861.
Klett, Gene R.; Kokaly, Joseph; Risk, Norman E.; and Smith, Roger M., 3,739,506.
Miller, Elbert H., 3,740,170.
Miller, Lawrence J., 3,739,504.
Niles, Albert B., 3,739,761.
Witzenburg, Marion J., 3,740,059.

Cavil, David I., to Outboard Marine Corporation. Safety circuit for electric steering system. 3,739,738, Cl. 114-144.00r.

Cayphas, Etienne; Leclercq, Robert; and Van-Cauter, Albert, to Glaverbel S.A. Method and apparatus for bending a glass ribbon to a different draw direction. 3,740,205, Cl. 65-25.00a.

Celanese Corporation: *See—*
Soehngen, John W., 3,740,302.
Watson, George A., 3,740,282.

Celotex Corporation, mesne: *See—*
Sivin, Bernard J., 3,739,832.

Ceskoslovenska akademie ved: *See—*
Putterlik, Jan, 3,739,481.

Cevasco, Albert Anthony, to American Cyanamid Company. Certain 2-(o-sulfonamidophenyl)-4 (3H)-quinazolinones. 3,740,402, Cl. 260-256.50r.

Chafitz, Steven Roy; and Laden, Karl, to Gillette Company, The. Intermittent dispensing device. 3,739,952, Cl. 222-213.000.

Chaikin, Saul W., to Xidex Corporation. Adhesion of organic materials to organic polymers. 3,740,252, Cl. 117-34.000.

Chamberlain, John, to United Aircraft Corporation. Combustion system. 3,739,576, Cl. 60-39.74r.

Champion Spark Plug Company: *See—*
Gauthier, William D.; and Rogers, Daniel M., 3,740,612.

Chancellor, Charles W. Salt impregnated device for containers. 3,740,239, Cl. 99-171.00b.

Chaney, Robert; and Kelly, Michael A., to Hewlett-Packard Company. Analyzer employing magneto-optic rotation. 3,740,151, Cl. 356-117.000.

Chang, Joseph J.: *See—*
Agusta, Benjamin; and Chang, Joseph J., 3,740,620.

Chang, Richard S., to Mattel, Inc. Helicopter toy. 3,740,032, Cl. 272-31.00b.

Chao, Stanley K., to Data Electronics Corporation. Ring core keyboard entry device. 3,740,745, Cl. 340-365.00e.

Chapman, Carl P.: *See—*
United States of America, National Aeronautics and Space Administration, 3,740,725.

Charlesworth, Donald, to Pilkington Brothers Limited. Electrode assemblies. 3,740,445, Cl. 13-6.000.

Charron, William W., to Ford Motor Company. Enrichment fuel-air supply system. 3,739,760, Cl. 123-127.000.

Chemagro Corporation: *See—*
Newallis, Peter E.; Poje, Albert J.; and Epstein, Peter F., 3,740,435.

Chemex Corporation: *See—*
Westover, Virginia, 3,739,932.

Chemical Construction Corporation: *See—*
Negra, John S.; and Warshaw, Abe, 3,740,349.
Tourtellotte, John F.; Negra, John S.; Warshaw, Abe; and Villiers-Fisher, John F., 3,739,583.

Chemische Werke Huels Aktiengesellschaft: *See—*
Eichers, Ursula; Hahmann, Otto; Meyer, Heinz-Hermann; Rombusch, Konrad; and Rossbach, Manfred, 3,740,380.

Cheney, Oliver F.: *See—*
McKeegan, James J.; Cheney, Oliver F.; and Bash, Ignatius F., 3,740,759.

Chernenko, Galina Moiseevna: *See—*
Dolgoplosk, Boris Alexandrovich; Tinyakova, Elena Ivanovna; Beilin, Solomon Isaakovich; Makovetsky, Kirill Lvovich; Chernenko, Galina Moiseevna; Ostrovskaya, Irina Yakovlevna; Krol, Vladimir Alexandrovich; and Khrennikova, Elena Konstantinovna, 3,740,382.

Cherry, Alton Edgar: *See—*
Richards, George Gilman, Jr.; and Cherry, Alton Edgar, 3,740,571.

Chertok, Allan, to EG & G, Inc. Storing digital data on a grooved record medium. 3,740,733, Cl. 340-173.00r.

Chevron Research Company: *See—*
Allphin, Nylen L., Jr.; and Hotten, Bruce W., 3,740,338.
Ferm, Richard L., 3,740,344.

Chicago Pneumatic Tool Company: *See—*
Amtsberg, Lester A., 3,740,174.

Chilton, Kenneth M.: *See—*
Johnson, Calvin N., 3,739,409.

Chimer, Francois Jean; and Richer, Georges, to S.I. Prest'Hygia. Door operated device for spraying a room. 3,739,949, Cl. 222-180.000.

Chopra, Jagdish C., to TRW Inc. Variable duty-cycle and frequency oscillator circuit. 3,740,668, Cl. 331-113.00r.

Chow, Joe G. Y., to United States of America, Atomic Energy Commission. High post-irradiation ductility process. 3,740,274, Cl. 148-12.000.

Christiansen, Henning, to Lyon & Healy, Inc. Hard construction. 3,739,680, Cl. 84-266.000.

Christie, Howard W.; and Byerley, Thomas J., to Butler Manufacturing Company. Heat-resistant phenolic foam compositions. 3,740,358, Cl. 260-2.50f.

Christopher, Harold A., to General Electric Company. Method for making sealed container for elemental sodium and method of forming. 3,740,206, Cl. 65-36.000.

Chromalloy American Corporation: *See—*
Gabriel, James M.; and Reilly, William, 3,739,445.

Chung, Soo Chul: *See—*
Kezer, Charles F.; and Chung, Soo Chul, 3,740,534.

Church, Nathan Lewis, to International Nickel Company, Inc., The. Oxidation resistant austenitic ductile nickel-chromium iron. 3,740,212, Cl. 75-128.00c.

Churchill, Bruce W.; Steel, Robert; and Buss, David R., to Upjohn Company, The. Composition of matter and process. 3,740,318, Cl. 195-65.000.

Ciba-Geigy AG: *See—*
Ehrat, Kurt, 3,740,475.

Ciba-Geigy Corporation: *See—*
Eichenberger, Kurt; Egli, Christian; and Hedwall, Roberta, 3,740,439.
Geller, Leo; and Wolfgang, Georg, 3,739,951.

Cilderman, Janis; and Clarkson, Charles Heyd, to Otis Elevator Company. Recessed compensating sheave. 3,739,881, Cl. 187-94.000.

Cincinnati Milacron-Heald Corporation: *See—*
Robillard, Edward G.; and Uhtenwoldt, Herbert R., 3,739,528.

Clark Automation, Inc.: *See—*
Follrath, Richard D.; and Race, Russell L., 3,739,619.

Clark, Ronald John. Drying apparatus. 3,739,487, Cl. 34-77.000.

Clark, William. Escape device. 3,739,875, Cl. 182-6.000.

Clarkson, Charles Heyd: *See—*
Cilderman, Janis; and Clarkson, Charles Heyd, 3,739,881.

Claude: *See—*
Divoix, Jacques Climeut; and Taxil, Marc V., 3,740,605.

Clayton, David W.: *See—*
Liebergott, Norman; Clayton, David W.; and deMontigny, Raimbault M. A. T., 3,740,311.

Clayton Dewandre Company, Limited: *See—*
Page, Wilbur Mills; and Coupland, Ralph, 3,739,802.

Cleary, Mark W., to Clemco-Clementina Ltd. Safety control handle for air actuated equipment. 3,740,018, Cl. 251-94.000.

Clemco-Clementina Ltd.: *See—*
Cleary, Mark W., 3,740,018.

Clerc, Henri; and Floessel, Dieter, to Aktiengesellschaft Brown, Boveri & Cie. Compressed gas circuit breaker having coupled variable-volume high and low pressure chambers for expediting gas pressure recovery in the high pressure chamber. 3,740,509, Cl. 00-148.00b.

Clifford, Gloria L.; and Clifford, Richard P. Ski binding tester adapted for testing heel bindings. 3,739,631, Cl. 72-133.00a.

Clifford, Richard P.: *See—*
Clifford, Gloria L.; and Clifford, Richard P., 3,739,631.

Cline, George A. Data conversion and recording apparatus. 3,740,721, Cl. 340-172.500.

Cline, Lawrence R.: *See—*
Caldwell, Samuel I.; and Cline, Lawrence R., 3,739,652.

Clody, Donald E.; Beer, Bernard; Vogel, John; and Horovitz, Zula P., to Squibb, E. R., & Sons, Inc. Anti-anxiety composition and method of use. 3,740,433, Cl. 424-253.000.

Coblentz, Bernard S.; and White, Vincent F., to Foster Grant Co., Inc. Fixture for supporting rotary display racks. 3,739,920, Cl. 211-123.000.

Coen Company, Inc.: *See—*
Vosper, Ralph R., 3,739,989.

Cohen, Melvin Irwin; and Fulton, Alan William, to Bell Telephone Laboratories, Incorporated. Encoding of read only memory by laser vaporization. 3,740,523, Cl. 219-121.0fm.

Cohen, Robert A.: *See—*
Natman, Solomon; and Cohen, Robert A., 3,739,419.

Cohn, Nathan, to Leeds & Northrup Company. Control of power system for optimum economy. 3,740,572, Cl. 307-57.000.

Coil, Frederick J. Motorcycle towing device. 3,740,074, Cl. 280-402.000.

Cole, Edward L.; and Hess, Howard V., to Texaco Inc. Process for treating septic biological wastes in arctic climates. 3,740,332, Cl. 210-63.000.

Cole, Frank J.: *See—*
Reed, William A.; and Cole, Frank J., 3,740,043.

Cole, John J.: *See—*
Piffath, Rodney S.; and Cole, John J., 3,740,183.

Colehower, William S., to Jomac Inc. Work gloves. 3,739,400, Cl. 2-161.00r.

Coles, Charles F.: *See—*
Smagala-Romanoff, Edward A., 3,740,159.

Colf, Henry B., to American Optical Corporation. Fiberscope viewing system with dynamic image enhancer. 3,740,115, Cl. 350-96.00b.

Colgate-Palmolive Company: *See—*
Hewitt, Gordon Trent, 3,740,422.

Colombo, Gianni; and Ippolito, Giovanni, to AGES S.p.A.-Azienda Generale Elettronica Servomeccanismi. Read only memory device with capacitive coupling of information. 3,740,729, Cl. 340-173.0ca.

Colterjohn, Walter L.; and Karkow, Waldemar B., Jr. Panoramic aerial camera. 3,739,699, Cl. 95-12.500.

Columbia Broadcasting System: *See—*
Baron, Stanley N., 3,740,743.

Combined Optical Industries Limited: *See—*
Stern, David, 3,740,122.

Combustion Engineering, Inc.: *See—*
Liebig, Preston Dean, 3,739,555.
Taylor, Jonathan Todd, 3,740,574.
Triggs, Leonard Edward, 3,739,990.
Tuppeny, William Henry, Jr., 3,739,752.

Commissariat a l'Energie Atomique: *See—*
Antier, Guy; and Nicolas, Gerard, 3,739,467.
Saglio, Robert, 3,739,628.

Communications Satellite Corporation: *See—*
Standing, Arthur F., 3,740,499.

Compagnie des Comptuers: *See—*
Docousset, Robert Eugene Raymond, 3,739,798.

Compagnie Generale d'Electricite: *See—*
Farcy, Jean-Claude; Dumanchin, Roger; and Rocca-Serra, Jean, 3,740,662.

Compagnie Generale des Etablissements Michelin, raison Sociale Michelin & Cie: *See—*
Verdier, Henri, 3,739,830.

Compagnie Industrielle des Telecommunications Cit-Alcatel: *See—*
Dureau, Gabriel; Roche, Leon; and Villain, Marcel, 3,740,746.

Compoly, Albert W.; and Kautz, Robert F., to Bendix Corporation, The. Silicon controlled rectifier gate drive with back bias provisions. 3,740,583, Cl. 307-252.00h.

Comstock, Alfred E.; and Wilcox, Burdsal Gardner, to Safeway Stores, Inc. Apparatus for cutting and handling block-line articles. 3,739,668, Cl. 83-102.000.

Comstock, Gilbert L., to Weyerhaeuser Company. Orifice pattern for jet dryers. 3,739,490, Cl. 34-162.000.

Conch International Methane Limited: *See—*
Jackson, Robert G.; and Armstrong, Edward, 3,740,526.

Conn, C. G., Ltd.: *See—*
Southard, James S., 3,740,449.

Conradt, James C., to L & J Speciality Corporation. Lighted stair rail. 3,740,541, Cl. 240-2.00w.

Continental Can Company, Inc.: *See—*
Windstrup, Robert F., 3,739,904.

Continental Oil Company: *See—*
Hwang, Philip T. R.; and Pusey, Walter C., III., 3,740,641.

Contois, Lawrence E.; and Merrill, Stewart H., to Eastman Kodak Company. Photoconductive elements containing complexes of Lewis acids and formaldehyde resins. 3,740,218, Cl. 96-1.500.

Contratto, James; and Green, Frederic L., to U.S. Industries, Inc. Globe support. 3,740,547, Cl. 240-144.000.

Control Data Corporation: *See—*
Barbour, William P., 3,739,716.

Cook, Elton S.; Tanaka, Kinji; and Fujii, Akira, to Stanley Drug Products, Inc. Methods and compositions for inducing resistance to bacterial infections using certain lysine. 3,740,438, Cl. 424-319.000.

Cook, George W.; and Stilwell, Robert G. Digital magnetic tape recording system using symmetrical differential pulse width modulation with a triangular reference signal. 3,740,491, Cl. 179-100.20r.

Cook, Harold D., to Teletype-Corporation. Circuit testing by comparison with a standard circuit. 3,740,645, Cl. 324-73.00r.

Cooley, Denton A.; Liotta, Domingo S.; and Kahn, Paul, to Cutler Laboratories, Inc. Bicuspid fascia lata valve. 3,739,402, Cl. 3-1.000.

Cooper, Lawrence E.: *See—*
Grenier, Aime J.; Suter, Richard E.; and Cooper, Lawrence E., 3,740,650.

Copley, Stephen M.; Giamei, Anthony F.; Hornbecker, Merton F.; and Kear, Bernard H., to United Aircraft Corporation. Process of making shell molds. 3,739,835, Cl. 164-35.000.

Copystatics Manufacturing Corporation: *See—*
Aasen, Torulf F.; Mogil, Bernard; and Schaffel, Martin, 3,739,800.

Corcoran, John D.: *See—*
Montgomery, Rex; Bateson, George F.; Corcoran, John D.; and Krbechek, Le Roy O., 3,740,388.

Cornell Aeronautical Laboratory, Inc.: *See—*
Stiller, Paul F., 3,739,407.

Corrodi, Hans Rudolf: *See—*
Carlsson, Per Arvid Emil; Corrodi, Hans Rudolf; Florwall, Gosta Lennart; and Ross, Svante Bertil, 3,740,430.

Cory Corporation: *See—*
Herbsthofer, Franz L.; Karlen, Harvey R.; and Wagner, Herbert E., 3,739,709.

Coscia, Anthony Thomas: *See—*
Williams, Laurence Lyman; and Coscia, Anthony Thomas, 3,740,391.

Costa, Ralph E.; and Trevillian, Walter W., to Hubbert, B. H., & Sons, Inc. Processing kettle. 3,739,710, Cl. 99-348.000.

Couch, Dean H.: *See—*
Brudette, George W.; and Couch, Dean H., 3,739,626.

Coulter Chemistry Inc., means: *See—*
Jones, Alan Richardson, 3,740,041.

Coupland, Ralph: *See—*
Page, Wilbur Mills; and Coupland, Ralph, 3,739,802.

Cox Atheletics, Inc.: *See—*
Cox, Paul L., 3,739,500.

Cox, Paul L., to Cox Atheletics, Inc. Exercise shoe. 3,739,500, Cl. 36-2.50a.

Cranston, Benjamin Howell, to Western Electric Company, Incorporated. Explosive metal-working process. 3,739,614, Cl. 72-56.000.

Craven, David L., to United States of America, Navy. Fluidic failure detection system. 3,739,689, Cl. 91-3.000.

Creapo, Ralph W.; Downham, Roy E.; Eckelaert, Jack F.; Frost, John W.; and Klein, David M., to TEC Systems, Inc. High velocity air web dryer. 3,739,491, Cl. 34-156.000.

Cremer, Walter; and Stanke, Walter, to Head Wrightson and Company, Limited. Apparatus for cooling hot material in bulk. 3,739,495, Cl. 34-187.000.

Cretors, C., & Co.: *See—*
Cretors, Charles D., 3,739,953.

Cretors, Charles D., to Cretors, C., & Co. Popcorn oil metering device. 3,739,953, Cl. 222-318.000.

Creusot-Loire: *See—*
Llop, Helenio, 3,739,630.
Pere, Gerard, 3,739,600.
Ruget, Gabriel, 3,739,887.

Crispe, Stanley William, to Simon-Vicars Limited. Biscuit handling machinery. 3,739,901, Cl. 198-30.000.

Crittenden, Odell D. Carton stitching machine. 3,739,972, Cl. 227-3.000.

Crivello, James V., to General Electric Company. Method for making polyimides from aliphatically unsaturated bis-imides. 3,740,378, Cl. 260-78.0ua.

Cronin, Dennis C., to Beloit Corporation. Structure for threading paper machine. 3,740,312, Cl. 162-306.000.

Crooks, James W., to Allis-Chalmers Corporation. Planetary transmission. 3,739,647, Cl. 74-15.630.

Cross, Chaillos. Golfer's practice head guide. 3,740,051, Cl. 273-183.00e.

Crow, Robert B.: *See—*
United States of America, National Aeronautics and Space Administration, 3,740,671.

Crowle, William G.: *See—*
Ostrwosky, Efrem M.; and Crowle, William G., 3,739,941.

Crown Zellerbach Corporation: *See—*
Pagels, Rolf W., 3,739,408.

Crown Zellerbach Corporation, mesne: *See—*
Herschler, Robert J.; and Jacob, Stanley W. (said Jacob assor. to), 3,740,420.

Crumley, J. A.: *See—*
Swengel, Robert Charles, Sr.; Reyner, Emerson Marshall, II; and Crumley, J. A., 3,740,202.

Cryder, John R., to Caterpillar Tractor Company. Pilot operated control valve. 3,739,690, Cl. 91-28.000.

CSI Liquidating Corporation: *See—*
Pacini, Elmo J.; Johnson, Alford H.; and Turner, Robert B., Jr., 3,739,649.

Cub, Fritz; Kleinert, Paul; Lammermann, Heinz; and Schacht, Hans, to Bosch, Robert, G.m.b.H. Filter element for filtering of liquids. 3,739,916, Cl. 210-493.000.

Cupler, John A., II. Method of producing clean walled bores in laminates workpieces. 3,739,461, Cl. 29-557.000.

Cupp, James E. Anti-jacknifing trailer coupling. 3,740,076, Cl. 280-432.000.

Currie, James H.: *See—*
Burley, Harvey A.; Bleil, Carl E.; Rishavy, Edward A.; and Currie, James H., 3,739,753.

Curtis, Little P.; Ying, Sui-Chun; and Dailey, George F., to Westinghouse Electric Corporation. Liquid cooled rotor for dynamoelectric machines. 3,740,596, Cl. 310-54.000.

Curtis, Malcolm Rex. Kite. 3,740,009, Cl. 244-153.00r.

Curtis, Malcolm Rex. Kite controller. 3,740,010, Cl. 244-155.00a.

Curtiss-Wright Corporation: *See—*
Haberaki, Richard Joseph, 3,739,843.

Cutler Laboratories, Inc.: *See—*
Cooley, Denton A.; Liotta, Domingo S.; and Kahn, Paul, 3,739,402.

Cwycyshyn, Walter; and Kitchen, Llwyn L., Jr., to General Motors Corporation. Vehicle positioning ind restraint apparatus. 3,739,906, Cl. 206-65.00r.

Czajka, Ronald J.: *See—*
Bickford, Allan M.; and Czajka, Ronald J., 3,739,799.

D.A.B. Industries, Inc.: *See—*
Mitchell, David C.; and Latreille, Charles W., 3,740,512.

Dahl, Erik Ovale; and Hustvedt, Ohep Nsrway, to Elkem A/S. Discharging device for containers in which particulate material is treated with gases in counter-current flow. 3,739,494, Cl. 34-174.000.

Dahlberg, John R.; and Dear, Terrance A., to PPG Industries, Inc. Method for cutting curved patterns in glass sheets disposed on a fluid air support. 3,740,524, Cl. 219-121.0lm.

Dahlmans, Johannes J.; and Boesten, Wilhelmus H. J., to Stamicarbon N.V. Preparation of peptides. 3,740,386, Cl. 260-112.500.

Dahms, Gerhard: *See—*
Heider, Joachim; Nickl, Josef; Eberlein, Wolfgang; Kobinger, Walter; and Dahms, Gerhard, 3,740,390.

Dailey, George F.: *See—*
Curtis, Little P.; Ying, Sui-Chun; and Dailey, George F., 3,740,596.

Dainabo Radioisotope Laboratories, Ltd.: *See—*
Kato, Sadatake; and Kurata, Kunio, 3,740,558.

Dairyland Food Laboratories, Inc.: *See—*
Nelson, John H.; and Witt, Paul R., 3,740,233.

Daniel, David J. Ben; Fielding, John O.; and Hurwitz, Henry, Jr. Audio reproducing apparatus for ramdom access playback systems. 3,740,055, Cl. 274-9.0ra.

Daniell, Gerald Wallace. Artificial line bridge subscriber dial long lin equipment tester line. 3,740,497, Cl. 179-175.300.

Dappen, Glen Marshall, to Eastman Kodak Company. Fogged, direct-positive silver halide emulsions containing triazolium salts and the use thereof in reversal processes. 3,740,226, Cl. 96-64.00r.

Dart Industries, Inc.: *See—*
Agostinelli, Armand J., 3,740,262.

D'Asaro, Lucian A., to Bell Telephone Laboratories, Incorporated. Minor lobe suppression in semiconductor injection lasers. 3,740,661, Cl. 331-94.50c.

Data Electronics Corporation: *See—*
Chao, Stanley K., 3,740,745.

Daughenbaugh, Eli M.; and Platt, Thomas R., to Westinghouse Electric Corporation. Apparatus for making circular welds. 3,740,520, Cl. 219-60.00a.

David, Guy Albert Jules: *See—*
Breant, Pierre Louis Vincent; David, Guy Albert Jules; Pares, Francois; and Grima, Jean-Claude, 3,740,478.

Davidson, Jodell. Novelty party cup. 3,739,975, Cl. 229-8.000.

Davies, Daniel J.: *See—*
Manion, Jean P.; and Davies, Daniel J., 3,740,256.
Manion, Jean P.; and Davies, Daniel J., 3,740,325.

Davies, Peter H.: *See—*
Purves, William F.; Lee, William F.; Davies, Peter H.; and Jeffery, William J., 3,740,232.

Davies, Thomas J , Jr., to North American Rockwell Corporation. Multiple phase clock generator circuit with control circuit. 3,740,660, Cl. 331-45.000.

Davis, Elbert, to Nupla Corporation. Method of connecting attachments to fiberglass rods. 3,739,457, Cl. 29-460.000.

Davis, Francis A., Jr., to Paramount Packaging Corporation. Apparatus for making plastic bags. 3,739,694, Cl. 93-33.00h.

Dawsin, Joseph H., Jr.: *See—*
Carreau, David W.; Fahlman, Aake T.; and Dawsin, Joseph H., Jr., 3,739,736.

Dayco Corporation: *See—*
Duckett, John C.; Ensley, Rufus Neal; Williams, Leland E.; and Logan, Arthur D., 3,739,675.

De Bono, Edward. Board game apparatus. 3,740,037, Cl. 273-134.0af.

De Carlo, Frank S.: *See—*
O'Connor, Bernard J.; and De Carlo, Frank S., 3,739,646.

De Haes, Louis Maria; Hofman, Emiel Alexander; and Gevers, Hugo Karel, to Agfa-Gavaert. Photographic material. 3,740,220, Cl. 96-29.00r.

De Toma, Samuel M., to Eduj Corporation. Intermittent gearing arrangement. 3,739,654, Cl. 74-461.000.

Dear, Terrance A.: *See—*
Dahlberg, John R.; and Dear, Terrance A., 3,740,524.

Dearmont, Donald D., to Phillips Petroleum Company. Bowling ball core containing sponge rubber chips. 3,740,354, Cl. 260-2.50h.

Deering Milliken Research Corporation: *See—*
King, Herbert P., 3,739,564.

Degaetano, Ben. Liquid-proof safety closure. 3,739,933, Cl. 215-9.000.

Deibel, Erwin, to Maschinenfabrik Lorenz Aktiengesellschaft. Workpiece magazine. 3,739,450, Cl. 29-211.00r.

Demel, Gerhard: *See—*
Wehren, Peter; Haas, Helmut; and Demel, Gerhard, 3,739,991.

Deml, Reinhold: *See—*
Bestenreiner, Friedrich; Deml, Reinhold; and Helmberger, Josef, 3,740,464.

deMontigny, Maseleine C.: *See—*
Liebergott, Norman; Clayton, David W.; and deMontigny, Raimbault M. A. T., 3,740,311.

deMontigny, Raimbault M. A. T.: *See—*
Liebergott, Norman; Clayton, David W.; and deMontigny, Raimbault M. A. T., 3,740,311.

Denton, Clyde T., to Resilient Services Incorporated. Base and border assemblies for floor coverings and the like. 3,739,423, Cl. 16-16.000.

Desalination Systems, Inc.: *See—*
Bray, Donald T., 3,740,330.

Deumu Deutsche Erz-und Metall-Union Gesellschaft mit beschrankter Haftung: *See—*
Glatz, Horst, 3,739,542.

Deutsch, Ralph, to North American Rockwell Corporation. Apparatus and method for simulating chief in a sampled amplitude electronic organ. 3,740,450, Cl. 84-1.240.

Deutsche Babcock & Wilcox Aktiengesellschaft: *See—*
Lachnit, Friedrich, 3,740,098.

DeVries, Richard Alan, to Minnesota Mining and Manufacturing Company. Apparatus for photographing a person while a document is handled at a work station. 3,739,698, Cl. 95-1.100.

DeWitt, John H., Jr., to Laser Systems & Electronics, Inc. Timing and measuring methods and means for laser distance measurements. 3,740,141, Cl. 356-5.000.

Di Drusco, Giovanni; and Galli, Paolo, to Montecatini Edison S.p.A. Purification of olefinic polymers obtained in liquid phase. 3,740,381, Cl. 260-80.780.

Di Giovanni, Samuel J. Loading dock safety guard. 3,740,022, Cl. 256-24.000.

Diablo Systems, Inc.: *See—*
Gabor, Andrew, 3,740,735.

Dickey, Frank R., Jr., to General Electric Company. Digital generation of quadrature samples. 3,740,655, Cl. 328-166.000.

Dickson, Colin G.; and Wickersheim, Kenneth A., to Spectrotherm Corporation. Tiltable instrument support head. 3,740,011, Cl. 248-183.000.

Diehl, H. L., Co., Inc.: *See—*
Gieringer, Robert G.; Gieringer, Robert H.; and Gieringer, William A., 3,740,066.

Diesel Kiki Kobushiki Kaisha: *See—*

Ohtani, Yoshio; and Kakijima, Todomu, 3,739,757.

Dietz, Wolfgang Friedrich Wilhelm, to RCA Corporation. Voltage supplies. 3,740,474, Cl. 178-7.50r.

Dillon, John R. Method for making tubing. 3,740,284, Cl. 156-171.000.

Dion, C. Norman; and Maruyama, Dennis T., to Memorex Corporation. Spiral recording with error checking. 3,740,736, Cl. 340-174.10g.

Divoix, Jacques Climeut; and Taxil, Marc V., to Claude. High pressure mercury vapor discharge lamp. 3,740,605, Cl. 313-229.000.

Dixie Manufacturing Company, Inc.: *See—*
Wolfe, Russell C., 3,739,589.

Dochterman, Richard W., to General Electric Company. Dynamoelectric machine assembly. 3,740,599, Cl. 310-91.000.

Docommun, George: *See—*
Adler, Karl; and Docommun, George, 3,740,273.

Docousset, Robert Eugene Raymond, to Compagnie des Comptuers. Fluidic/pneumatic devices using equilibrium of forces. 3,739,798, Cl. 137-85.000.

Doerfer Corporation: *See—*
Doerfer, Richard F.; Leymaster, Homer N.; and Neebel, Richard R., 3,739,903.

Doerfer, Richard F.; Leymaster, Homer N.; and Neebel, Richard R., to Doerfer Corporation. Apparatus for diverting articles from a path of travel. 3,739,903, Cl. 198-35.000.

Dolgoplosk, Boris Alexandrovich; Tinyakova, Elena Ivanovna; Beilin, Solomon Isaakovich; Makovetsky, Kirill Lvovich; Chernenko, Galina Moiseevna; Ostrovskaya, Irina Yakovlevna; Krol, Vladimir Alexandrovich; and Khrennikova, Elena Konstantinovna. Stereospeciic synthetic rubber based on 1,3-butadiene and method of producing same. 3,740,382, Cl. 260-82.100.

Dolthoff, Alvin E.: *See—*
Jones, David H.; and Dolthoff, Alvin E., 3,739,720.

Dominion Engineering Works, Limited: *See—*
Nelson, John Edward; and Guerguerian, Laurent, 3,739,993.

Doniger, Jerry; Morse, Carson; and Knemeyer, Siegfried, to Bendix Corporation, The. Vertical flight path computer. 3,740,004, Cl. 244-77.00d.

Donnelley, R. R., & Sons Company: *See—*
McGlashan, Andrew David, Sr., 3,740,222.

Dorschner, Kenneth P.; and Albright, James A., to SCM Corporation. Alpha-aryl-N-lower alkyl nitrone-containing compositions useful as anti-microbial agents. 3,740,441, Cl. 424-327.000.

Dorsey, Denis Peter, to RCA Corporation. Television frame storage apparatus. 3,740,465, Cl. 178-6.800.

Dosso, Felice: *See—*
Gonsalves, George E.; and Dosso, Felice, 3,739,424.

Dougherty, William Edwin, Jr., to International Business Machines Corporation. Multilayer printed circuit board and method of manufacture. 3,739,469, Cl. 29-625.000.

Douglas, Bruce M.: *See—*
Manning, Lindley; Mc Kee, Robert B.; Zemke, Hubert; and Douglas, Bruce M., 3,740,301.

Dover Corporation: *See—*
Moore, Glenn E.; and Guertin, Robert W., 3,739,945.

Dow Chemical Company, The: *See—*
Garner, Joseph L., 3,740,359.
Nimerick, Kenneth H., 3,740,360.
Patrick, Frank D.; and Najvar, Daniel J., 3,740,353.
Walles, Wilhelm E., 3,740,258.

Downham, Roy E.: *See—*
Creapo, Ralph W.; Downham, Roy E.; Eckelaert, Jack F.; Frost, John W.; and Klein, David M., 3,739,491.

Doyle, Edward F.; and Le Feuvre, Thomas, to Thermo Electron Corporation. Shaft seal. 3,740,057, Cl. 277-3.000.

Drawe, John W., to Leisure Vehicle Inc. Snowmobile. 3,739,867, Cl. 180-5.00r.

Dresser Industries, Inc.: *See—*
Cason, George Acker, Jr.; and Simmons, James Wesley, 3,739,864.
Gorgens, Joseph E.; Heske, William A.; and Goff, Randall, 3,739,645.
Griffin, Phil H., III; and Sharki, Martin J., 3,740,739.
Meripol, Robert B., 3,739,849.

Drews, Jurgen: *See—*
Bartles, Alfred; Drews, Jurgen; and Pinkerneil, Gunther, 3,739,428.

Drushel, Robert W., to Ex-Cell-O Corporation. Zener coupled amplifier circuit with feedback. 3,740,579, Cl. 307-235.000.

Druskin, Bernard. Snap clasp for bracelets. 3,739,433, Cl. 24-230.0cf.

Drwal, Ted H.; and Perlman, Michael J., said Drwal, Ted H., assor. to said Perlman, Jay M. Coffee brewer. 3,740,231, Cl. 99-71.000.

DS Electro-Optical Incorporated: *See—*
Lasky, Daniel J., 3,739,705.

Du Pont de Nemours, E. I., and Company: *See—*
Alderson, Thomas; and Newman, James A., 3,740,303.
Novak, Ernest Richard, 3,740,375.
Proskow, Stephen, 3,740,369.
Williamson, David Vincent Stewart, 3,739,567.
Winkelblech, Kermit W., 3,740,367.

Du Pont of Canada Limited: *See—*
O'Neill, Joseph Thomas, 3,739,546.

Dubois, Chester G.: *See—*
Berry, Robert J.; and Dubois, Chester G., 3,739,763.

Dubouchet, Jacques L., to Societe Generale de Constructions Electrique et Mecaniques (Alsthom). Automatic water gate construction. 3,739,585, Cl. 61-25.000.

Dubreuil, Serge, to Societe S.B.F. Connecting device for fluid-circuit. 3,739,804, Cl. 137-269.000.

Duckett, John C.; Ensley, Rufus Neal; Williams, Leland E.; and Logan, Arthur D., to Dayco Corporation. Rotary anvil construction. 3,739,675, Cl. 83-659.000.

Dudkin, Vyacheslav Fedorovich: *See—*
Bogrets, German Nikolaevich; Bondar, Nikolai Pavlovich; Sizonenko, Grigory Alexandrovich; Minakov, Anatoly Gavrilovich; Barsukov, Mikhail Ivanovich; Mitkevich, Grigory Iosifovich; Dudkin, Vyacheslav Fedorovich; Teslya, Andrei Mikhailovich; and Kolomiets, Nkolai Emelyanovich, 3,740,207.

Duerr, Bruno A., to General Motors Corporation. Engine turbocharger drive system. 3,739,572, Cl. 60-13.000.

Dulnker, Hans Dignus; and Leng, Eric Raymond, to U.S. Philips Corporation. Method of manufacturing display screens for cathode-ray tubes. 3,739,439, Cl. 29-25.180.

Dulux Australia Ltd.: *See—*
Fox, David Brian, 3,740,255.

Dumanchin, Roger: *See—*
Farcy, Jean-Claude; Dumanchin, Roger; and Rocca-Serra, Jean, 3,740,662.

Dunand, Andre; Jarry, Jacques; and Gloanec, Maurice, to Sescosem-Societe Europeene de Semiconducteurs et de Microelectronique. Electromechanical vibration pick-ups and record pick-ups with field effect transistors. 3,740,494, Cl. 179-100.41k.

Dunaway, J. C.: *See—*
Ayre, Vernon Hall; and Dunaway, J. C., 3,740,003.

Duncan, William A.: *See—*
Sandlin, Billy J.; Duncan, William A.; and Murfree, James A., Jr., 3,740,198.

Duning, Roland L., to Burger Chef Systems, Inc.(BC). Apparatus and method for cooking hamburgers or the like. 3,739,712, Cl. 99-349.000.

Dunlop Holding Limited: *See—*
Powell, Leslie Vernon; and Edwards, Reginald Harold, 3,739,829.

Dunlop, James. Finger pick for stringed musical instruments. 3,739,681, Cl. 84-322.000.

Dureau, Gabriel; Roche, Leon; and Villain, Marcel, to Compagnie Industrielle des Telecommunications Cit-Alcatel. Magnetic keyboard. 3,740,746, Cl. 340-365.001.

Durham, George M., Jr. Fishing float. 3,739,513, Cl. 43-17.000.

Dynamit Nobel Aktiengesellschaft: *See—*
Wienand, Michael; Jensen, Klaus; Primessing, Franz; and Alfter, Franz-Werner, 3,740,294.

Eager, William A.: *See—*
Bell, Walter; and Eager, William A., 3,739,688.

Easter, Finis Claude, to RCA Corporation. Transformer coupled switching regulator. 3,740,639, Cl. 321-2.000.

Eastman Kodak Company: *See—*
Contois, Lawrence E.; and Merrill, Stewart H., 3,740,218.
Dappen, Glen Marshall, 3,740,226.
Gramza, Eugene P.; and Stahly, Frederick A., 3,740,217.
Wroblewski, Richard J., 3,740,001.

Easton, Harlan J. Grain drying and storage apparatus. 3,739,926, Cl. 214-17.0ca.

Eaton Corporation: *See—*
Jones, William H., 3,740,741.
Schultz, Jerald, 3,739,612.
Sommer, Donald E., 3,740,021.

Ebauches Bettlach S.A.: *See—*
Bachmann, Peter, 3,739,570.

Ebauches S.A.: *See—*
Rochat, Daniel, 3,739,569.

Eberlein, Wolfgang: *See—*
Heider, Joachim; Nickl, Josef; Eberlein, Wolfgang; Kobinger, Walter; and Dahms, Gerhard, 3,740,390.
Heider, Joachim; Eberlein, Wolfgang; and Engelhardt, Gunther, 3,740,392.

Eberspacher, J.: *See—*
Reuter, Fritz, 3,740,667.

Ebnother, Anton; and Rissi, Erwin, to Sandoz Ltd.; a/k/a Sandoz AG. Dihydro-3-[4-hydroxy-1-(di or tri-substituted phenethyl)-4-piperidyl]-2(3H) furanone. 3,740,406, Cl. 260-293.670.

Ebnother, Anton; and Rissi, Erwin, to Sandoz Ltd.; a/k/a Sandoz AG. Dihydro-3-(4-hydroxy-1-phenethyl-4-piperidyl)-2-(3H)-furanones. 3,740,407, Cl. 260-293.670.

ECC Corporation: *See—*
Fricker, David C.; Whittake, Thomas F.; Fink, Leon, Jr.; and Lamb, Stephen K., 3,740,631.

Echrich, Peter, & Sons, Inc.: *See—*
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Eckert, John S., to Norton Company. Method of gas absorption and apparatus therefor. 3,739,551, Cl. 55-90.000.

Eckert, Konrad: *See—*
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Eichenberger, Kurt; Egli, Christian; and Hedwall, Roberta, to Ciba-Geigy Corporation. Treating hypertension with β-aminoalkane carboxylic acids. 3,740,439, Cl. 424-319.000.
Eichers, Ursula; Hahmann, Otto; Meyer, Heinz-Hermann; Rombusch, Konrad; and Rossbach, Manfred, to Chemische Werke Huels Aktiengesellschaft. Crystalline thermoplastic compositions. 3,740,380, Cl. 260-78.00s.
Eichhorn, Robert Milne, to Union Carbide Corporation. Bonding plastics with plasma arc radiation. 3,740,287, Cl. 156-272.000.
Eiger, William H. Practice device. 3,740,053, Cl. 273-194.00b.
Eilenberger, Stanley D., to Progressive Products Corporation. Making disposable electric devices. 3,739,464, Cl. 29-592.000.
Electric Reduction Company of Canada, Limited: *See—*
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Rapson, William H.; and Reeve, Douglas W., 3,740,308.
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Engdahl, Paul D. Peak shock recorder. 3,740,757, Cl. 346-7.000.
Engdahl, Richard E.; and Bedell, John R., to Energy Research Corporation. Thermionic converter. 3,740,592, Cl. 310-4.000.
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Ennis, Charles W., Jr. Garage construction. 3,739,540, Cl. 52-175.000.
Ennis, Warren H. Resilient harness device for a walking cast. 3,739,772, Cl. 128-80.00g.
Ensley, Rufus Neal: *See—*
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Environment/One Corporation: *See—*
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Epis, James J., to GTE Sylvania Incorporated. Broadband cup-dipole and cup-turnstile antennas. 3,740,754, Cl. 343-797.000.
Eppler, Daniel, to Thomas & Betts Corporation. Connector. 3,739,470, Cl. 29-628.000.
Epstein, Peter F.: *See—*
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Eriksen, Finn Engelberth. Sugar coating apparatus. 3,739,744, Cl. 118-19.000.
Erlichman, Irving, to Polaroid Corporation. Novel photographic camera film processing means. 3,739,701, Cl. 95-13.000.
Ernst, Richard J., to Xerox Corporation. Label stacking apparatus. 3,739,667, Cl. 83-92.000.
Esashi, Hanjiro; and Kawamata, Katsuyoshi, to Sony Corporation. Reel driving device. 3,739,998, Cl. 242-68.003.
ESB Incorporated: *See—*
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Esch, Robert E., to Kureha Kagaku Kogyo Kabushiki Kaisha. Digital counter averaging system. 3,740,532, Cl. 235-92.0ev.
Ess, John O., to United States of America, Navy. Low frequency wave absorbing device. 3,739,411, Cl. 9-8.00r.
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Falk, David E. Combustion gas recirculating turbine engine. 3,739,575, Cl. 60-39.18b.
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Farbenfabriken Bayer Aktiengesellschaft: *See—*
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Fauroux, Jean Philippe, to Societe Anonyme dite: Societe Nationale des Petroles d'Aquitaine. Electric gas-discharge lamp. 3,740,604, Cl. 313-220.000.
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Fell, Ferol S.: *See—*
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Felsen, Franciscus. Electric convector heater. 3,740,527, Cl. 219-365.000.
Felter, John V. Turbine ventilators. 3,739,708, Cl. 98-72.000.
Fema Corporation: *See—*
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Ferm, Richard L., to Chevron Research Company. Nonionic emulsifiers for controlling the setting rate of anionic emulsion. 3,740,344, Cl. 252-311.500.
Fernlund, Lars Martin Ingemar, to SKF Industrial Trading and Development Company N.V. Cylindrical roller bearing. 3,740,108, Cl. 308-212.000.
Ferrentino, Antonio, to Industrie Pirelli Societa per Azioni. Oil compensation system for electric power cables impregnated with insulating oil. 3,739,803, Cl. 137-255.000.
Ferreri, Vincent: *See—*
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Fertig, Raymond Baines, to Appalachian Electronic Instruments, Inc. Retro-reflective type detector head with fail-safe feature. 3,740,562, Cl. 250-219.0df.
Feulner, Ronald W. Environmental board game apparatus. 3,740,038, Cl. 273-134.0ad.
Fiat Societe per Azioni: *See—*
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Fidelity File Box, Inc.: *See—*
Pfaffendorf, James L.; and Johnson, Marlyn D., 3,740,109.
Fiderer, Leo. Method of making printed circuit boards. 3,740,225, Cl. 96-43.000.
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Fish Engineering & Construction, Inc.: *See—*
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Fisher, Donald M. Shield for electrical plug. 3,740,694, Cl. 339-36.000.
Fisher, John L., to Kuhlman Corporation. Transformer with connector and method of assembly. 3,740,685, Cl. 336-192.000.
Fister, Louis P.; Fitch, Lawrence H.; Jeney, George K.; and Scheublein, William A., to Moog Industries, Inc. Vehicle tandem axle suspension system. 3,740,069, Cl. 280-104.50r.
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Fitzgerald, William Vincent, Jr., to RCA Corporation. Width control circuit for a television receiver. 3,740,472, Cl. 178-7.5se.
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Fleck, Horst G.; Rome, Martin; and Wixted, Joseph M., to Weston Instruments, Inc. Dimension controlling apparatus for drawing. 3,740,561, Cl. 250-201.000.
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Sitver, Leonard Allan; and Yelin, Robert Emil, 3,740,188.
Follrath, Richard D.; and Race, Russell L., to Clark Automation, Inc. Automatic extrusion handling system. 3,739,619, Cl. 72-255.000.
Folstadt, Robert H. Rotary engine. 3,739,755, Cl. 123-43.00b.
Folts, John D., to Wisconsin Alumni Research Foundation. Electromagnetic flowmeters for blood or other conductive fluids. 3,739,640, Cl. 73-194.0em.
Fonken, Gunther S.; Herr, Milton E.; and Murray, Herbert C., to Upjohn Company, The. Oxygenated 3-aza bicyclo[3,3,1]nonanes. 3,740,408, Cl. 260-293.540.
Ford Motor Company: *See—*
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Fortin, Bernard Marie Charles. Collapsible boat with V-shaped pneumatic float. 3,739,410, Cl. 9-2.00a.
Foseco Trading A.G.: *See—*
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Fougere, Guy L.; and Rothery, John L. Method and apparatus for testing coins employing dimensional categorizing means. 3,739,895, Cl. 194-100.00a.
Fournier, Joseph L., to Red-Lee Metal Finishing Company, Inc. Fluid cooled hub assembly for a contact wheel. 3,739,535, Cl. 51-356.000.
Fowler, Carson W.: *See—*
Odom, Richie G.; and Fowler, Carson W., 3,739,985.
Fox, David Brian, to Dulux Australia Ltd. Humidity resistant paint systems. 3,740,255, Cl. 117-74.000.
Fox, James H., to Mattel, Inc. Starting switch for toys. 3,739,521, Cl. 46-232.000.
Franc, Charles. Battery powered illuminated ornament. 3,740,543, Cl. 240-6.40r.
Frandon, Pierre M., to Texas Instruments, Incorporated. Dynamic data storage cell. 3,740,732, Cl. 340-173.00r.
Franklin Electric Co., Inc.: *See—*
Whitney, John A.; Woods, Richard E.; and Hohman, William H., 3,740,632.
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Freedman, William B., to Freedman Cut-Outs, Inc. Display unit. 3,739,511, Cl. 40-124.100.
Freeman, Alfred. Treatment of footwear. 3,739,413, Cl. 12-1.00a.
Freese, Charles E. Method and apparatus for drying compressed air. 3,739,594, Cl. 62-93.000.
Freiberg, Robert J.; and Buczer, Carl J., to United Aircraft Corporation. Hybrid frequency stable laser system. 3,740,664, Cl. 331-94.500.
Freimanis, Laimons, to Bell Telephone Laboratories, Incorporated. Telephone subscriber line dial pulse detector circuit. 3,740,486, Cl. 179-918.0fa.
Freitag, Lawrence F.: *See—*
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Frey, Bernhard. Overrunning clutch. 3,739,889, Cl. 192-45.200.
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Fricker, David C.; Whittake, Thomas F.; Fink, Leon, Jr.; and Lamb, Stephen K., to ECC Corporation. Voltage comparator controlled motor starting circuit. 3,740,631, Cl. 318-221.00e.
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Frigitronics of Conn., Inc.: *See—*
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Fromer, Stephen. Wrist mounted pill box. 3,739,740, Cl. 116-121.000.
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Fuller, Robert R., to Gulf States Paper Corporation. Effluent treatment processes. 3,740,363, Cl. 210-18.000.

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Gabriel, James M.; and Reilly, William, to Chromalloy American Corporation. Powder metal magnetic pole piece. 3,739,445, Cl. 29-182.500.

Gadberry, William A. Diesel engine injector puller. 3,739,452, Cl. 29-254.000.

Galli, Paolo: *See*—
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Gaquer, George E.; Gaquer, John G.; and Nagourney, Alphonse. External heart massage apparatus. 3,739,771, Cl. 128-51.000.

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Garabello, Romano, to Rom-Air International, Inc. Pressure operated retractable landing gear. 3,739,519, Cl. 46-78.000.

Garcia, Hernando J., to Integrated Systems Technology, Inc., mesne. Direct-current power supply system. 3,740,569, Cl. 307-11.000.

Gardner, Gerald Marvin; and Gibbard, David William, to Image Analysing Computers Limited. Feature parameter measurement by line scanning. 3,740,468, Cl. 178-6.800.

Gardner, Willis W.; and Rafferty, Richard L., to Waukesha Bearings Corporation. Forward sealing assembly for stern tubes. 3,740,058, Cl. 277-15.000.

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Garland, Carl C.; Kwarsick, Edmund J.; and Noren, Oscar B., to Parke, Davis & Company. Capsule handling apparatus and method. 3,739,909, Cl. 209-90.000.

Garner, Joseph L., to Dow Chemical Company, The. Vinylidene chloride expandable microspheres. 3,740,359, Cl. 260-2.50b.

Garner, Peter, to Thomas & Betts Corporation. Semi-automatic hand tool for extruding electrical connectors. 3,739,448, Cl. 29-203.00h.

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Garrett, Jim C.; Johnson, Robert H.; Shelton, Jack; and LaBarge, Louis P., to Garrett, Jim C., Johnson, Robert H. and said LaBarge assor. to said Shelton, Jack. Slide switch cutover device contactor. 3,740,500, Cl. 200-16.00c.

Garuts, Valdis E., to Tektronix, Inc. Continuously variable resistance attenuator using lossy transmission line and having constant signal transit time. 3,740,676, Cl. 333-81.00a.

Gastrock, William Henry: *See*—
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Gauthier, William D.; and Rogers, Daniel M., to Champion Spark Plug Company. Apparatus for coating with electrostatically charged particulate materials. 3,740,612, Cl. 317-3.000.

Gautier, Rene, to Ugine Kuhlmann. Process for extracting uranium from its ores. 3,740,200, Cl. 423-6.000.

Gavaert-Agfa N.V.: *See*—
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Gaylord, Norman G., to Gaylord Research Institute, Inc. Novel graft copolymers having branches of alternating comonomer units. 3,740,362, Cl. 260-17.4gc.

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Gelbenegger, Franz, to Ipas Kommanditgesellschaft. Braked joint for protheses and orthoses. 3,739,404, Cl. 3-27.000.

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Geller, Leo; and Wolfgang, Georg, to Ciba-Geigy Corporation. Device for the dispensing of a single dose of a liquid. 3,739,951, Cl. 222-193.000.

Genbauffe, Francis S., to Robertshaw Controls Company. Fuel control system and control device therefor or the like. 3,739,812, Cl. 137-625.320.

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Gerdin, Yngve, to Sandvik Aktiegolag. Means for fastening cutting dies on a base plate. 3,739,676, Cl. 83-698.000.
Gerecke, Max; and Zimmermann, Jean Pierre, to Hoffmann-La Roche Inc. ( )-Cis-1,3-dibenzyl-hexahydro-1H-thieno-[3,4-d] imidazols-2,4-dione, and process for its preparation. 3,740,416, Cl. 260-309.700.
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Glatz, Horst, to Deumu Deutsche Erz-und Metall-Union Gesellschaft mit beschrankter Haftung. Shuttering and reinforcing element for concrete structures. 3,739,542, Cl. 52-669.000.
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Goffe, William L., to Xerox Corporation. Photoelectrosolographic imaging employing a releasable imaging layer. 3,740,216, Cl. 96-1.000.
Goffe, William L., to Xerox Corporation. Migration imaging structure. 3,740,223, Cl. 96-1.500.
Goldberg, Ronald A. Combination step ladder and work support. 3,739,876, Cl. 182-27.000.
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Goodman, Abraham; and Leblanc, Conrad, to Foster Grant Co., Inc. Floatable spectacles. 3,740,124, Cl. 351-43.000.
Gordon, Jing. Device for retaining trouser-legs in position while being machine ironed. 3,739,959, Cl. 223-63.000.
Gores, Kenneth W. Reservoir dispenser. 3,739,955, Cl. 222-385.000.
Gorgens, Joseph E.; Heske, William A.; and Goff, Randall, to Dresser Industries, Inc. Differential pressure indicating apparatus. 3,739,645, Cl. 73-407.00r.
Gorman, John F. Aerosol inhalation apparatus. 3,739,950, Cl. 222-182.000.
Gorman, John Thomas, to RCA Corporation. Bus bar with integral terminals. 3,740,693, Cl. 339-19.000.
Gorog, Istvan; and Spong, Fred William, to RCA Corporation. Holographic recording system for large objects. 3,740,111, Cl. 350-3.500.
Goto, Hiroshi: *See—*
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Graham, Seymour C. Stackable cookie package and tray. 3,740,238, Cl. 99-171.0ct.
Graham, Thomas A. Portable charcoal igniter. 3,739,732, Cl. 110-1.00f.
Gramza, Eugene P.; and Stahly, Frederick A., to Eastman Kodak Company. Photoconductive coating employing an imbibed conductive interlayer. 3,740,217, Cl. 96-1.500.
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Grauel, Edwin L. Multi-keeled kite. 3,740,008, Cl. 244-153.00r.
Greber, Isaac, to Bell Telephone Laboratories, Incorporated. Laminar flow wall attachment fluid logic device. 3,739,814, Cl. 137-81.500.
Green, Brian Noel, to Associated Electrical Industries Limited. Plural beam mass spectrometer. 3,740,551, Cl. 250-41.9me.
Green, Frederic L.: *See—*
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Green, Joseph A., to International Telephone and Telegraph Corporation. Modulated composition flame photometer. 3,740,154, Cl. 356-187.000.
Green, William Harry Francis; and Terry, John Brian, to Marconi Company Limited. Junctors. 3,740,479, Cl. 179-15.0aq.
Greenbaum, George. Horticultural cell system and method of manufacture. 3,739,522, Cl. 47-34.130.
Greenberg, Michael P.; Fletcher, William E.; and Morley, Richard E., to Modicon Corporation. Digital computer. 3,740,722, Cl. 340-172.500.
Greene, Jack C., to United States of America, Navy. Pulsed repeater amplifier. 3,740,647, Cl. 325-6.000.
Greene, Marvin H. Tow for snowmobiles. 3,740,065, Cl. 280-19.000.
Gregg, David Paul. Intravenous feeding apparatus and system. 3,739,777, Cl. 128-214.00e.
Gregory, John, to M. L. Aviation Company, Limited. Respirators. 3,739,774, Cl. 128-142.700.
Grenier, Aime J.; Suter, Richard E.; and Cooper, Lawrence E., to Texas Instruments, Incorporated. Electromagnetic switch. 3,740,650, Cl. 335-239.000.
Grenzeback, Robert J. Microwave antenna with radome. 3,740,755, Cl. 343-840.000.
Gribp, Leonard P.; Kincaid, Norman L.; and Hensleigh, Melvin A., to Westinghouse Electric Corporation. Automatic draft compensation for reversing mill edger drive. 3,739,613, Cl. 72-19.000.
Griffin, Gene E., to Lambert, Bruce, mesne. System for time recordation. 3,740,727, Cl. 340-172.500.
Griffin, Phil H., III; and Sharki, Martin J., to Dresser Industries, Inc. Well monitoring and warning system. 3,740,739, Cl. 340-239.00r.
Griffith, Joseph W.: *See—*
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Gritsenko, Anna Nikitichna; Vikhlyaev, Jury Ivanovich; Zhuravlev, Semen Vladimirovich; Kaverina, Natalya Veniaminovna; Senova, Zlata Petrovna; and Ulyanova, Olga Vasilievna. Ethyl 10-(b-morpholylpropionyl)-phenthiazine-2-carbamate hydrochloride. 3,740,395, Cl. 260-243.0ac.
Groebel, Alfred; and Lindner, Ernst, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Pharmacologically effective substance for lowering blood pressure and process for isolating it from cabucala madagascariensis. 3,740,426, Cl. 424195.000.
Groner, Warren; Kusnetz, Jacob; and Saunders, Alexander M., to Technicon Instruments Corporation. Automatic apparatus for determining the percentage population of particulates in a medium. 3,740,143, Cl. 356-39.000.
Gros-Ite Industries, Inc.: *See—*
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Gross, Frederick A., to International Rectifier Corporation. Four-way valve. 3,739,811, Cl. 137-625.270.

Grossman, Milton J., 1/4 to Baisch, J. Carroll. Ball tossing game having slidably adjustable receptacles. 3,740,035, Cl. 273-96.00r.

Grote Manufacturing Company, The: *See*—
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Grotjahn, Alfred. Distress call signalizer of the miniature transmitter type. 3,740,648, Cl. 325-113.000.

Grover, Scott C., to Kenway Engineering, Incorporated. Overspeed sensor for safety brake system. 3,740,635, Cl. 318-382.000.

Grubb, Willard T., to General Electric Company. Chloride selective electrode. 3,740,326, Cl. 204-195.00m.

Grunert, Kurt A., to Westinghouse Electric Corporation. Contactor with improved contact means. 3,740,510, Cl. 200-166.00k.

GTE Automatic Electric Laboratories, Incorporated: *See*—
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Van Son, Darryl J., 3,740,697.

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Giles, George R.; and Lockitt, John A., 3,740,537.
Hoppel, Thomas O'Marah, 3,740,606.
Johnson, Richard E.; and Powley, George D., 3,740,699.
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Gudz, Nikolai Martynovich; and Adutskevich, Eduard Kazimirovich. Apparatus for washing containers. 3,739,790, Cl. 134-60.000.

Guerguerian, Laurent: *See*—
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Gugler, Victor F. Apparatus for continuously panning dough. 3,739,900, Cl. 198-19.000.

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Gunther, James C., to Robertshaw Control Company. Testing apparatus and method for screw-like items. 3,739,908, Cl. 209-75.000.

Gurevich, Yakov Adolfovich: *See*—
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Haas, Paul J., to Singer Company, The. Driving disc for toothed yarn controller ring. 3,739,602, Cl. 66-95.000.

Haberski, Richard Joseph, to Curtiss-Wright Corporation. Lightweight panel structure of the honeycomb core type. 3,739,843, Cl. 165-170.000.

Hack, Helmuth: *See*—
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Hahmann, Otto: *See*—
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Hakala, John R., to Harrison Jet Guns Inc. Perforating gun. 3,739,723, Cl. 102-20.000.

Hale, James: *See*—
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Hall, James M. Mars; and Biglow, James W., to Jackson & Church Electronics Company, Inc. Surveillance system. 3,740,466, Cl. 178-6.800.

Hallerback, Stig Lennart, to SKF Industrial Trading and Development Company, N.V. Electric motors for other electric rotary machines and method for the manufacture thereof. 3,740,598, Cl. 310-86.000.

Halliday, Robert B., to Singer Company, The, mesne. Printed circuit board assembly aid. 3,739,447, Cl. 29-203.00b.

Hallman, Beverley G.; and Thomas, Robert M., to GTE Automatic Electric Laboratories, Incorporated. Indirect addressing apparatus for small computers. 3,740,719, Cl. 340-172.500.

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Hanada, Keiichi; Saito, Kimihiko; and Iwase, Akikazu, to Meidensha Electric Mfg. Co. Ltd. Fluidic counter device. 3,739,979, Cl. 235-201.0pf.

Hance, Harold V.; and McCord, Henry L., to Hughes Aircraft Company. Cross-correlator. 3,740,747, Cl. 343-5.0mm.

Hanemann, Walter, to Feldmuble Aktiengesellschaft. Method and apparatus for the shrink-wrapping of packages. 3,739,544, Cl. 53-24.000.

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Hanusek, Frank A.; and Galuschak, George, to Bendix Corporation, The. Gyro compassing apparatus and method. 3,739,480, Cl. 33-321.000.

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Haraszti, Tegze, to Licentia Patent-Verwaltungs-G.m.b.H. Dynamic logic interconnection. 3,740,576, Cl. 307-205.000.

Hardwick, Thomas Lee Richard. Coil transporting structure. 3,739,930, Cl. 214-390.000.

Harnden, John D., Jr., to General Electric Company. Protective connector devices. 3,740,701, Cl. 338-220.000.

Harrelson, Glen R., to Olinkraft, Inc. Longitudinal stabilizer tab for basket-style carriers. 3,739,940, Cl. 220-113.000.

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Harris, Hilary. Motion picture sound processing apparatus. 3,740,125, Cl. 352-17.000.

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Harrison, David Blackburn, to Lucas, Joseph, (Industries) Limited. Automatic transmission system. 3,739,661, Cl. 74-866.000.

Harrison, Ian T.; and Fried, John H., to Syntex Corporation. Naphthyloxyacetic acids and pharmaceutical compositions and methods thereof. 3,740,437, Cl. 424-317.000.

Harrison Jet Guns Inc.: *See*—
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Harrison, Marquerite D.: *See*—
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Hartmann & Braun Aktiengesellschaft: *See*—
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Harwood, Leopold Albert, to RCA Corporation. Electronic signal processing circuit. 3,740,456, Cl. 178-5.4ad.

Harwood, Leopold Albert, to RCA Corporation. Detector circuits with self-referenced bias. 3,740,461, Cl. 178-5.4ad.

Harwood, Leopold Albert, to RCA Corporation. Automatic chroma gain control system. 3,740,462, Cl. 178-5.4ac.

Hasegawa, Shuji; and Kawata, Hideaki. Sway-arrest system improvement. 3,739,922, Cl. 212-125.000.

Hasty, Turner Elijah, to Texas Instruments, Incorporated. Method for encapsulating discrete semiconductor chips. 3,739,462, Cl. 29-577.000.

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Hederich, Volker; Gehrke, Gunter; Neef, Rutger; and Wegner, Peter, to Bayer Aktiengesellschaft. Continuous dyeing of synthetic fibers with water immiscible organic solvents and amino anthraquinones. 3,740,186, Cl. 8-39.000.

Hedrick, Ross M.: *See*—
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Hedwall, Roberta: *See*—

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Hefley, Ervin R.: *See—*
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Heidenhain, Johannes: *See—*
Miller, Walter; and Feichtinger, Kurt, 3,740,134.
Heider, Joachim; Nickl, Josef; Eberlein, Wolfgang; Kobinger, Walter; and Dahms, Gerhard, to Boehringer Ingelheim GmbH. Cardenolide rhamnosides. 3,740,390, Cl. 260-210.500.
Heider, Joachim; Eberlein, Wolfgang; and Engelhardt, Gunther, to Ingelheim Boehringer G.m.b.H. Heterocyclic carboxylic acid esters of fluocinolone acetonide. 3,740,392, Cl. 260-239.55d.
Heigl, John J.; and Lewis, Oliver G., to Esso Research and Engineering Company. Photometric analyzer sampling cell. 3,740,156, Cl. 356-204.000.
Heinemann, Robert W., to United States of America, Army. Self-destructible fuze. 3,739,725, Cl. 102-70.000.
Heins, Sidney M., to Thiem Corporation, mesne. Galvanizing preflux wash composition. 3,740,275, Cl. 148-26.000.
Heinzer, Hans, to Schweizerische Industrie-Gesellschaft. Device for connecting parallel bands or oppositely disposed wall portions of a tube by transverse welding seams. 3,740,300, Cl. 156-583.000.
Helb, Inc.: *See—*
Brooks, Elgin C., 3,739,492.
Helgeson, Peter L., to Raytheon Company. Fuel burner structure. 3,739,766, Cl. 126-19.00r.
Heller, Paul R.; Ying, Sui-Chun; and Luzader, James E., to Westinghouse Electric Corporation. Water cooled rotor for dynamoelectric machines. 3,740,595, Cl. 310-52.000.
Hellerich, Walter; and Sadowski, Volker, to Arbed S.A. Arbed-Felten & Guilleaume Vereinigte Drahtwerke. Reinforced post of synthetic plastic material. 3,740,024, Cl. 256-51.000.
Hellner, Lars Ivar; Hede, Nils Erik Allan; and Johansson, Hans Elof, to Aktiebolaget Bofars. Stainless ferrite austenitic steel. 3,740,213, Cl. 75-128.000.
Helm, Laszlo; Kosa Gyrogy; and Szucas, Attila, to Medicor Muvek. Pneumatic pressure type respirator. 3,739,775, Cl. 128-145.800.
Helmberger, Josef: *See—*
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Hemingway, Eric: *See—*
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Hemphill, Julie A., to United States of America, Air Force. Digital sorter and ranker. 3,740,538, Cl. 235-177.000.
Hendrickson, Vergil P.: *See—*
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Hendy, Brian Norman, to Imperial Chemical Industries Limited. Adiabatic calorimetry. 3,740,194, Cl. 23-230.00a.
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Hensleigh, Melvin A.: *See—*
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Herbert, Donald L., to Ohio Brass Company, The. Electric current collector. 3,740,498, Cl. 191-49.000.
Herbsthofer, Franz L.; Karlen, Harvey R.; and Wagner, Herbert E., to Cory Corporation. Beverage brewer. 3,739,709, Cl. 99-289.000.
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Hermann, Heinrich: *See—*
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Herndon, John W., to United States of America, Navy. Reflective panoramic TV projection system. 3,740,469, Cl. 178-6.800.
Herner, Raymond F.: *See—*
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Herr, Milton E.: *See—*
Fonken, Gunther S.; Herr, Milton E.; and Murray, Herbert C., 3,740,408.
Herron, William L.; and Adams, Kenneth D., to Singer Company, The. Electric motor mount for sewing machines. 3,739,735, Cl. 112-220.000.
Herschler, Robert J.; and Jacob, Stanley W., said Jacob assor. to Crown Zellerbach Corporation, mesne. Pharmaceutical compositions with dimethyl sulfoxide. 3,740,420, Cl. 424-45.000.
Herzog, Hershel L.; Weber, Lois; and Shapiro, Elliot L., to Schering Corporation. Hydrolysis of steroidal 21-carbonates. 3,740,316, Cl. 195-51.00r.
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Hess, Hans-Jurgen E.; and Nelson, Roger P., to Pfizer Inc. (2-Imidazolin-2-ylamino)substituted benzo[b]thiophenes. 3,740,417, Cl. 260-309.600.
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Long, William D.; Fell, Ferol S.; Wells, Bernard L.; and Prichard, John P., 3,739,559.
Heuner, Robert Charles; Niemiec, Stanley Joseph; and Morgan, David Keith, to RCA Corporation. Liquid crystal display. 3,740,717, Cl. 340-166.0el.
Hevia, Rafael J.; and Soto-Krebs, Luis. Rhenium extraction process. 3,739,549, Cl. 55-72.000.
Hewitt, Gordon Trent, to Colgate-Palmolive Company. Polyethylenimine hair and scalp rinse. 3,740,422, Cl. 424-78.000.
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Hihl, Samuel E., Jr. Diving toy. 3,739,520, Cl. 46-94.000.
Hill, Robert D., Jr., to Spectrol Electronics Corporation. Method of making a variable resistor. 3,739,468, Cl. 29-613.000.
Hill, Yates M., to International Business Machines Corporation. Strip transmission line structures. 3,740,678, Cl. 333-84.00m.
Himmelmann, Wolfgang: *See—*
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Hino, Masamichi; and Yoneda, Rinosuke, to Kubota Tekko Kabushiki Kaisha (Kubota, Ltd.). Device for detecting a rotating angle. 3,739,866, Cl. 177-178.000.
Hipple, George M., to Robertshaw Controls Company. Actuator means for a switch construction and the like. 3,740,504, Cl. 200-47.000.
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Hirose, Hiroshi, to Ricoh Co., Ltd. Device for automatically displaying and withdrawing an original positioning scale. 3,740,131, Cl. 355-75.000.
Hisey, Claude B.: *See—*
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Ho, Irving T.: *See—*
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Ho, Irving Tze; and Jen, Teh-Sen, to International Business Machines Corporation. Latchable decoder driver and memory array. 3,740,730, Cl. 340-173.00r.
Hoback, John T.; and Holub, Fred F., to General Electric Company. Composite materials bonded with siloxane containing polymides. 3,740,305, Cl. 161-183.000.
Hochman, Arthur. Display device aperatured for holding support hooks. 3,739,919, Cl. 211-57.000.
Hodgson, William D.: *See—*
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Hoenig, George. Pantograph apparatus. 3,739,824, Cl. 144-144.000.
Hoffer, Arthur; and Hale, James, to Transvac Electronics, Inc. Apparatus and method for verification of a credit card. 3,740,530, Cl. 235-61.70b.
Hoffman, Gary Robert, to Bendix Corporation, The. Integral RF modamp. 3,740,670, Cl. 332-18.000.
Hoffmann, Hellmut; Behrenz, Wolfgang; and Hammann, Ingeborg, to Farbenfabriken Bayer Aktiengesellschaft. Insecticidally active lower alkyl-substituted 2-chloro-2-thiono-1,3,2-dioxaphosphorinane. 3,740,427, Cl. 424-209.000.
Hoffmann-La Roche Inc.: *See—*
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Hogrefe, Arthur F.; and Sullivan, Ralph M., to United States of America, Navy. Charge regulator and monitor for spacecraft solar cell/battery system control. 3,740,636, Cl. 320-2.000.
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Holland, Joan. Umbrella with heat generating means. 3,739,792, Cl. 135-16.000.
Holling, John H. Line controllable boat. 3,739,516, Cl. 43-26.100.
Holmes, Alton B., to North American Rockwell Corporation. Integrated anti-wheel lock control valve assembly. 3,740,105, Cl. 303-21.00f.
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Buttafava, Pietro, 3,740,633.
Vigini, Giorgio, 3,740,615.
Hoppel, Thomas O'Marah, to GTE Sylvania Incorporated. Vibration suppressor in cathode assembly for electron discharge device. 3,740,606, Cl. 313-340.000.
Horan, Raymond E., Jr., to Jacuzzi Bros., Incorporated. Pressure controlled water system with isolatable pressure switch. 3,739,810, Cl. 137-568.000.
Horizons Incorporated: *See—*
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Hornbecker, Merton F.: *See—*
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Hornyak, Robert J. Variable position seat belt buckle holder. 3,740,094, Cl. 297-385.000.
Horovitz, Zula P.: *See—*
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Horowitz, Charles, to Berg Manufacturing Company, The. Brake system control valve. 3,740,106, Cl. 303-71.000.
Horowitz, Frederick A. Cubical block from two axially fitted identically molded sections. 3,739,730, Cl. 108-161.000.
Horton, Murray Robert; and Kutay, Robert Stephen, to RCA Corporation. Fabrication method for gas lasers having integral mirrors. 3,740,110, Cl. 316-21.000.
Hose, Eddy, to Hughes Aircraft Company. Electronic image cancellation for doppler receivers. 3,740,748, Cl. 343-8.000.
Hotten, Bruce W.: *See—*
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Howard, William E., to Materials Handling Systems, Inc. Device for holding and bundling newspapers. 3,739,714, Cl. 100-34.000.
Hoyler, Robert C., to Westinghouse Electric Corporation. Control of an interlocking in a vehicle control system. 3,740,548, Cl. 246-3.000.
Hoyt, Michael T.; Junker, Bernhard T.; Hedrick, Ross M.; and Breeding, Terry G., to Monsanto Company. Inlet reservoir for continuous polymer casting machine. 3,740,177, Cl. 425-115.000.
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Hubby, Laurence M., Jr., to Hewlett-Packard Company. Acousto-optic filter having an increased optical beam aperture. 3,740,117, Cl. 350-149.000.
Huber, William B., to Motorola, Inc. Magnetic tape head indexing assembly for cartridge type tape player. 3,740,493, Cl. 179-100.2ca.
Huffman, George W.; and Rustad, Norman E., to Quaker Oats Company, The. One-step preparation of a polyurethane-urea resin using a tetraalkylguanidine or isocyanate adduct thereof as a catalyst. 3,740,377, Cl. 260-75.0nc.
Hug, Hermann; Moser, Paul; Schwarz, Hans; and Zimmermann, Max, to Aktiengesellschaft Brown, Boveri & Cie. Tubular encased turbomachine with axially spaced sealing rings for compartmentizing the compressor and turbine components. 3,740,168, Cl. 417-360.000
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Hutchison, Robert B., to Emery Industries, Inc. Compositions useful as sperm oil substitutes. 3,740,333, Cl. 252-48.600.
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Hwang, Philip T. R.; and Pusey, Walter C., III., to Continental Oil Company. Process for determining hydrocarbon maturity using electron spin resonance. 3,740,641, Cl. 324-.50r.
Hyde, James A.; and Youngs, Roger W., to Nalco Chemical Company. Method and apparatus for detecting and controlling foamability of a liquid system. 3,739,795, Cl. 137-5.000.
Ichinose, Masataka: *See—*
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Ignatjev, Vladimir. Tamper resistant lock. 3,739,611, Cl. 70-364.00r.
Iida, Yoshihiko; and Goto, Yasushi, to Bridgestone Tire Company, Limited. Method for optimizing tire uniformity. 3,739,533, Cl. 51-281.00r.
Ikeda, Sadatoshi, to Niles Parts Co., Ltd. Pushbutton lock. 3,740,568, Cl. 307-10.0at.
Ikigai Tekko Kabushiki Kaisha: *See—*
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Image Analysing Computers Limited: *See—*
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Inagaki, Junpei; and Tadakuma, Susumu, to Tokyo Shibaura Electric Company, Ltd. Linear electric motor. 3,740,628, Cl. 318-135.000.
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Itoh, Mitsuto, to Olumpus Optical Co., Ltd. Surgical instrument. 3,739,784, Cl. 128-320.000.
Itoh, Takeshi, to Tokyo Shibaura Electric Co., Ltd. Linear beam tube modulation system using modulation of first grid. 3,740,649, Cl. 325-120.000.
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Jarrige, Georges Roger; and Nguyen, Dat Nhiep, 3,740,686.
Itzkan, Irving, to Avco Corporation. Transverse flowing liquid laser. 3,740,665, Cl. 331-94.500.
Itzuka, Kiyoshi, to Nippon Kogaku K.K. Device for detecting the boundary between different brightness regions of an object. 3,740,152, Cl. 356-156.000.
Iwaki, Katsutaro; Mori, Kazumasa; Ishihama, Masaru; and Kobayashi, Yukio, to Nippondenso Co., Ltd. Automobile battery charger with protection means. 3,740,637, Cl. 320-61.000.
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Jablansky, Louis, to United States of America, Army. In-line explosion arrester. 3,739,796, Cl. 137-68.000.
Jacknow, Burton B.; and Moriconi, Joseph H., to Xerox Corporation. Process of preparing solid developer for electrostatic latent images. 3,740,334, Cl. 252-62.100.
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Jackson, Robert G.; and Armstrong, Edward, to Conch International Methane Limited. Methods of welding together sheets to form walls, tanks or the like. 3,740,526, Cl. 219-137.000.
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Jacobson, Roger. Multiple-bolt installation jig. 3,739,451, Cl. 29-237.000.
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Jammet, Jean-Firmin; and Brych, Alfred, to Societe des Accumulateurs Fixes et de Traction, (Societe Anonyme). Cylindrical dry cells. 3,740,271, Cl. 136-107.000.
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Jarret, Jacques: *See*—
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Jarret, Jean; and Jarret, Jacques. Variable-reluctance electric motor. 3,740,630, Cl. 318-138.000.
Jarrige, Georges Roger; deceased (by Jarrige, Jeannine Germaine; administrator); and Nguyen, Dat Nhiep, to ITT Industries, Inc. Ignition device for high pressure discharge lamps. 3,740,686, Cl. 337-22.000.
Jarrige, Jeannine Germaine: *See*—
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Jarry, Jacques: *See*—
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Jay, Walter M. Grocery cart and checkout counter combination. 3,739,878, Cl. 186-1.0ac.
Jefferson Chemical Company, Inc.: *See*—
Bentley, Floyd Edward; and Godfrey, Norman Bell, 3,740,373.
Jeffery, William J.: *See*—
Purves, William F.; Lee, William F.; Davies, Peter H.; and Jeffery, William J., 3,740,232.
Jen, Teh-Sen: *See*—
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Jenkins Metals Shops, Inc., mesne: *See*—
Jenkins, Robert B., Sr.; and Jenkins, Robert B., Jr., 3,740,047.
Jenkins, Robert B., Jr.: *See*—
Jenkins, Robert B., Sr.; and Jenkins, Robert B., Jr., 3,740,047.
Jenkins, Robert B., Sr.; and Jenkins, Robert B., Jr., to Jenkins Metals Shops, Inc., mesne. Method and apparatus for building card screens. 3,740,047, Cl. 260-40.000.
Jensen, Arthur E. Sealing arrangement for irrigation pipe line sections. 3,740,061, Cl. 277-178.000.
Jensen, Klaus: *See*—
Wienand, Michael; Jensen, Klaus; Primessing, Franz; and Alfter, Franz-Werner, 3,740,294.
Jensen, Raymond H., mesne: *See*—
Albrecht, David Eugene, 3,740,167.
Jeong, Tung H.: *See*—
Wender, David C.; and Jeong, Tung H., 3,739,702.
Jerominek, Raymond, to Honeywell Information Systems, Inc. Ribbon cable connector system having stress relieving means. 3,740,698, Cl. 339-17.00f.
Jesmore, William D.; and Simon, Joseph A., to U.S. Manufacturing Corporation. Process for forming a flared end tubular metal part. 3,739,620, Cl. 72-256.000.
Jespersen, Paul W.; and Bump, Edward L., to Georgia-Pacific Corporation. Dispenser for flexible sheet material and a perforating mechanism adapted to be used therein. 3,739,965, Cl. 225-96.000.
Jessen, Henry J.: *See*—
Hicks, Leon E.; and Jessen, Henry J., 3,739,505.
Johansen, Geni G.: *See*—
Keldmann, Erik; and Johansen, Geni G., 3,739,787.
Johansson, Hans Elof: *See*—
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Johns-Manville Corporation: *See*—
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Johns-Manville Products Corporation: *See*—
Kehoe, Edward C., 3,739,915.
Johnson, Alford H.: *See*—
Pacini, Elmo J.; Johnson, Alford H.; and Turner, Robert B., Jr., 3,739,649.
Johnson, Calvin N., 33 1/3 to Chilton, Kenneth M. Adjustable mattress. 3,739,409, Cl. 5-345.000.
Johnson, Elmer G.; and Von Ohain, Hans P., to United States of America, Air Force. Apparatus for generating ultra high total enthalpy gases with multicomponent flow. 3,739,634, Cl. 73-147.000.
Johnson, Glenn D.: *See*—
Peterman, Charles P.; Johnson, Glenn D.; and Petersen, William H., 3,739,844.
Johnson, Harold M.; and Hendrickson, Vergil P., to Caterpillar Tractor Company. Blade lift/centershift controls for motor graders. 3,739,861, Cl. 172-793.000.
Johnson, Marlyn D.: *See*—
Pfaffendorf, James L.; and Johnson, Marlyn D., 3,740,109.
Johnson, Paul B.: *See*—
Taylor, Leta S.; Johnson, Paul B.; and Huskey, Eugene D., 3,739,641.
Johnson, Richard E.; and Powley, George D., to GTE Sylvania Incorporated. Printed circuit board connector. 3,740,699, Cl. 339-176.0mp.
Johnson, Robert E.; Swanson, Donald F.; and Westergren, George A., to Whirlpool Corporation. Shag rug cleaning tool for use with vacuum cleaners. 3,739,422, Cl. 15-397.000.
Johnson, Robert H.: *See*—
Garrett, Jim C.; Johnson, Robert H.; Shelton, Jack; and LaBarge, Louis P., 3,740,500.
Johnson, Wayne F.; and Miller, William R., to United States of America, Atomic Energy Commission. Reaction end-point recorder for use with a rotary analytical photometer. 3,740,760, Cl. 346-74.00e.
Johrde, Paul S.: *See*—
Amasino, Richard L.; and Johrde, Paul S., 3,740,601.
Jomac Inc.: *See*—
Colehower, William S., 3,739,400.
Jones, Alan Richardson, to Coulter Chemistry Inc., mesne. Reagent mixing apparatus. 3,740,041, Cl. 261-64.000.
Jones, David H.; and Dolthoff, Alvin E., to Electronic Data Preparation Corporation. Method of selective high speed printing using letters with flared limbs and gaps to compensate for smearing. 3,739,720, Cl. 101-93.00c.
Jones, Eric: *See*—
Ballard, Denis George Harold; Heap, Nicholas; Jones, Eric; Kilbourn, Barry Tarbatt; and Wyatt, Ronald John, 3,740,384.
Jones, Evan Islwyn, to Heath, G. H., & Co., Limited. Handling elongate materials. 3,739,967, Cl. 226-7.000.

Jones, Joseph W., Jr.: *See—*
Kochhar, Rajindar K.; Jones, Joseph W., Jr.; and Henry, Raymond M., 3,740,263.

Jones, Paul W., Jr., to General Electric Company. Pour hole closure for foam mold. 3,739,936, Cl. 220-86.00r.

Jones, Raymond E., to Brown & Root, Inc. Method and apparatus for evaluating offshore pipeline laying operations. 3,739,591, Cl. 61-72.300.

Jones, Samuel Paul, to General Electric Company. Heat exchanger having resiliently mounted tubular members. 3,739,840, Cl. 165-69.000.

Jones, Stanley C.; Roszell, Wayne O.; and Svaldi, Marvin A., to Marathon Oil Company. High water content oil-external micellar dispersions. 3,740,343, Cl. 252-308.000.

Jones, Thomas C.; and Cantarutti, Armindo, to NRM Corporation. Tire building machine. 3,740,293, Cl. 156-415.000.

Jones, William H., to Eaton Corporation. Alarm set point control system. 3,740,741, Cl. 340-272.000.

Joseph, Sebastian J., to Specialized Electronics Inc. Transducer mounting apparatus. 3,740,706, Cl. 340-8.500.

Jousson, Pierre J., to Institut de Recherche Woog. Multi-jet spray nozzle with a movable shutter member. 3,739,983, Cl. 239-101.000.

Junker, Bernhard T.: *See—*
Hoyt, Michael T.; Junker, Bernhard T.; Hedrick, Ross M.; and Breeding, Terry G., 3,740,177.

Junkers & Co., GmbH: *See—*
Romer, Kurt; Schmid, Josef; and Kraje, Adolf, 3,739,465.

Juntgen, Harald: *See—*
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Kabushiki Kaisha Honda Rokku: *See—*
Kuroki, Shigenobu, 3,739,610.

Kabushiki Kaisha Koparu: *See—*
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Kabushiki Kaisha Ricoh: *See—*
Maruyama, Shoji; Oida, Etsuo; Hamada, Takao; Asami, Tomiaki; and Iwata, Susumu, 3,740,229.

Kaelin, George R.; and Pellegrino, James A., to Litton Systems, Inc. Driving circuits for light emitting diodes. 3,740,570, Cl. 307-40.000.

Kafkis, Nicholas H., to Rico Corporation. Device for swabbing the bore of a musical instrument. 3,739,420, Cl. 15-211.000.

Kahn, Paul: *See—*
Cooley, Denton A.; Liotta, Domingo S.; and Kahn, Paul, 3,739,402.

Kaiser Aluminum & Chemical Corporation: *See—*
Scherer, John G.; and Taggart, Lewis W., 3,739,456.
Schroter, Richard C.; and Thomas, David C., 3,739,588.

Kaiser, Robert: *See—*
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Kakehi, Minoru: *See—*
Kashihara, Yoshio; Fukuzawa, Shozi; Imamura, Toshio; Kakehi, Minoru; and Watanabe, Masayuki, 3,740,415.

Kakenyaku Kako Kabushiki Kaisha: *See—*
Murai, Satoshi; and Tomioka, Chikanori, 3,740,399.

Kakijima, Todomu: *See—*
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Kalina, Henry A.: *See—*
Weintraub, Arthur; Kalina, Henry A.; and Cahill, Robert F., 3,740,710.

Kallenberg, Karl J., to Apeco Corporation. Dryer for photographic prints and the like. 3,739,486, Cl. 34-70.000.

Kallet, Eli A., to Farrand Optical Co., Inc. Microspectrophotometer with two fields of view. 3,740,147, Cl. 356-96.000.

Kalyanov, Dmitry Maximovich: *See—*
Kaushansky, David Aronovich; Gurevich, Yakov Adolfovich; Zhukov, Boris Grigorievich; Srapeniants, Rigo Artemievich; and Kalyanov, Dmitry Maximovich, 3,740,557.

Kamp, Craig D., 49% to Perri, Thomas J. Belt type isotonic exercising device. 3,740,033, Cl. 272-79.00r.

Kangas, Larry G.; and Kline, Robert J., to Minnesota Mining and Manufacturing Company. Magnetic powder applicator. 3,739,749, Cl. 118-637.000.

Kankaanpaa, Arvo M., 20% to Lee, Raymond, Organization, Inc., The. Power saw guide attachment. 3,739,678, Cl. 83-745.000.

Kansai Paint Company, Limited: *See—*
Nakamura, Akihide; Ito, Iko; Kondo, Taizo; and Inamura, Keizo, 3,740,370.

Kaplan, Saul; Prodo, Kenneth W.; and Shay, Edward G., to Millmaster Onyx Corporation. Soya amidopropyldimethylamine oxide. 3,740,351, Cl. 252-547.000.

Kappes, Karl A.; and Bateson, Sydney. High shear, rolled alumina ceramic substrate. 3,740,243, Cl. 106-65.000.

Karikawa, Tohru, to Asahi Kogaku Kogyo Kabushiki Kaisha. Camera photoflash device. 3,740,695, Cl. 339-45.00t.

Karkow, Waldemar B., Jr.: *See—*
Colterjohn, Walter L.; and Karkow, Waldemar B., Jr., 3,739,699.

Karlen, Harvey R.: *See—*
Herbsthofer, Franz L.; Karlen, Harvey R.; and Wagner, Herbert E., 3,739,709.

Karsten, Werner: *See—*
Linke, Horst; Karsten, Werner; and Albrecht, Helmut, 3,739,587.

Kashihara, Yoshio; Fukuzawa, Shozi; Imamura, Toshio; Kakehi, Minoru; and Watanabe, Masayuki, to Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France. Dihaloalkyl phthalimides. 3,740,415, Cl. 260-326.0hl.

Kashimura, Katsuichi: *See—*
Yoshioka, Yoshio; Hirasama, Kunio; and Kashimura, Katsuichi, 3,740,506.

Kasparek, Vladimir. Flow cuvette. 3,740,157, Cl. 356-246.000.

Kato, Sadatake; and Kurata, Kunio, to Dainabo Radioisotope Laboratories, Ltd. Radioactive isotope generator of short-lived nuclides. 3,740,558, Cl. 250-100.00t.

Katsura, Toyozo: *See—*
Akiyama, Hisao; Okano, Shigeru; Suzuki, Hiroyuki; Maezima, Kaoru; Komatsu, Toshiaki; and Katsura, Toyozo, 3,740,411.

Kaufman, Peter; and Liepert, Reinhold, to Patent-Truehand-Gesellschaft fur Elektrische Gluhlampen m.b.H. Apparatus and method to fill flashlamps. 3,739,441, Cl. 29-25.130.

Kaufmann, Edward A. Bicycle lock. 3,739,609, Cl. 70-234.000.

Kaufmann, Henry H., to Cargill Incorporated. Method and apparatus for transferring grain. 3,739,893, Cl. 193-17.000.

Kaushansky, David Aronovich; Gurevich, Yakov Adolfovich; Zhukov, Boris Grigorievich; Srapeniants, Rigo Artemievich; and Kalyanov, Dmitry Maximovich. Gamma-irradiation apparatus for granular materials of biological orgin. 3,740,557, Cl. 250-106.00r.

Kautz, Robert F.: *See—*
Compoly, Albert W.; and Kautz, Robert F., 3,740,583.

Kaverina, Natalya Veniaminovna: *See—*
Gritsenko, Anna Nikitichna; Vikhlyaev, Jury Ivanovich; Zhuravlev, Semen Vladimirovich; Kaverina, Natalya Veniaminovna; Senova, Zlata Petrovna; and Ulyanova, Olga Vasilievna, 3,740,395.

Kawai, Hiroshi: *See—*
Amakawa, Saichi; Miyamoto, Osamu; Kawamoto, Akito; and Kawai, Hiroshi, 3,739,670.

Kawamata, Katsuyoshi: *See—*
Esashi, Hanjiro; and Kawamata, Katsuyoshi, 3,739,998.

Kawamoto, Akito: *See—*
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Kawata, Hideaki: *See—*
Hasegawa, Shuji; and Kawata, Hideaki, 3,739,922.

Kaye, Gordon E., to Mallory, P. R., & Co., Inc. Power handle. 3,739,769, Cl. 127-106.000.

Kazama, Kazuo: *See—*
Sakurai, Tooshi; Tada, Satoshi; and Kazama, Kazuo, 3,740,119.

Kazama, Toshio: *See—*
Seki, Kazunori; and Kazama, Toshio, 3,740,166.

Kear, Bernard H.: *See—*
Copley, Stephen M.; Giamei, Anthony F.; Hornbecker, Merton F.; and Kear, Bernard H., 3,739,835.

Kec, William J., to Park-Ohio Industries, Inc., mesne. Radio frequency transformer for induction heating installation. 3,740,516, Cl. 219-10.750.

Kehoe, Edward C.; deceased (by Kehoe, Jean West; executrix), to Johns-Manville Products Corporation. Internal pressure precoat filter. 3,739,915, Cl. 210-394.000.

Kehoe, Jean West: *See—*
Kehoe, Edward C., 3,739,915.

Keith, Clarence E.: *See—*
Keith, Earl G.; and Keith, Clarence E., 3,739,671.

Keith, Earl G.; and Keith, Clarence E. Interleaving paper feeders. 3,739,671, Cl. 83-230.000.

Keldmann, Erik; and Johansen, Geni G., to Bristol-Myers Company. Hairsetting apparatus having applicator means for moistening the surface of the hair roller. 3,739,787, Cl. 132-9.000.

Keldmann, Erik, to Bristol-Myers Company. Hair curlers. 3,739,788, Cl. 132-33.00r.

Kell, Nathaniel B., to General Motors Corporation. Rotary machine apex seal. 3,740,175, Cl. 418-113.000.

Keller, Peter H.; and Foskett, Roger D., to Syntex Corporation. Colorimeter probe. 3,740,155, Cl. 356-188.000.

Kellermeyer, Christian. Circuit arrangement with door lock switch. 3,740,573, Cl. 307-116.000.

Kelly, Michael A.: *See—*
Chaney, Robert; and Kelly, Michael A., 3,740,151.

Kelsey, David H.; Putzier, Charles W.; and McColgan, John M., to Sloane, R & G, Manufacturing Company, Inc. Color bond surveillance system. 3,740,290, Cl. 156-310.000.

Kelsey-Hayes Company: *See—*
Ayers, David T., Jr., 3,740,101.
Brown, Donald D., 3,740,691.

Kent Air Tool Co.: *See—*
Gunning, Samuel D., 3,739,862.

Kent Instruments Limited: *See—*
Boden, Peter Standidge, 3,739,655.

Kenway Engineering, Incorporated: *See—*
Grover, Scott C., 3,740,635.

Kertzman, Norman. Compartmented portable case. 3,739,886, Cl. 190-49.000.

Kesaell, Archie; and Phelan, Charles Stephens, to Rohe' Scientific Corporation. Zero displacement diaphragm valve. 3,740,019, Cl. 251-129.000.

Kessler, George W.: *See—*
Stratton, Jerry L.; and Kessler, George W., 3,740,588.

Kezer, Charles F.; and Chung, Soo Chul, to Litton Systems, Inc. Warning system for load handling equipment. 3,740,534, Cl. 235-151.300.

Khan, Amir U., to United States of America, Agriculture. Heated sand dryer. 3,739,488, Cl. 34-95.000.

Khrennikova, Elena Konstantinovna: *See—*

Dolgoplosk, Boris Alexandrovich; Tinyakova, Elena Ivanovna; Beilin, Solomon Isaakovich; Makovetsky, Kirill Lvovich; Chernenko, Galina Moiseevna; Ostrovskaya, Irina Yakovlevna; Krol, Vladimir Alexandrovich; and Khrennikova, Elena Konstantinovna, 3,740,382.

Kieserling, Th., & Albrecht: *See—*
Pfeiffer, Hans, 3,739,621.

Kiesling, Rudolf; and Rothweiler, Richard C., to Square D Company. Miniature oil-tight push button and selector switch assembly and improved contact unit therefor. 3,740,501, Cl. 200-16.00r.

Kietzman, Richard C.: *See—*
Carl, David G.; Kietzman, Richard C.; and Knapp, William A., 3,740,259.

Kihara, Nobutoshi, to Sony Corporation. Magnetic recording and/or reproducing apparatus with automatic tape loading and unloading device. 3,740,495, Cl. 179-100.20t.

Kilbourn, Barry Tarbatt: *See—*
Ballard, Denis George Harold; Heap, Nicholas; Jones, Eric; Kilbourn, Barry Tarbatt; and Wyatt, Ronald John, 3,740,384.

Kilgour, John; Payne, Peter Charles John; Reid, Stewart; and Everett, Erice George, to Rotary Hoes Limited and National College of Agricultural, The Governors of the. Agricultural machine. 3,739,907, Cl. 209-26.000.

Killion, Mead Clifford: *See—*
Carlson, Elmer Victor; and Killion, Mead Clifford, 3,740,496.

Kim, Dong G.: *See—*
Rossbach, Dennis R.; and Kim, Dong G., 3,740,654.

Kimberly-Clark Corporation: *See—*
Bernardin, Leo J., 3,739,782.
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Kimoto, Yohichi: *See—*
Nagase, Yukihiko; Yoshida, Mitsutoshi; Kimoto, Yohichi; and Sakano, Toyoshi, 3,739,577.

Kimura, Akira; and Tajima, Masaharu, to Ikigai Tekko Kabushiki Kaisha. Numerical controlled boring machine. 3,740,160, Cl. 408-2.000.

Kimura, Kazuyoshi: *See—*
Yano, Nobumitsu; Fukushima, Masao; Fukinbara, Itaru; Kishi, Masanori; and Kimura, Kazuyoshi, 3,740,244.

Kimura, Sachio; and Aoki, Yoshiaki, to Kabushiki Kaisha Koparu. Broadcast channel selecting mechanism having motor operated rotary member. 3,740,679, Cl. 334-9.000.

Kincaid, Norman L.: *See—*
Gribp, Leonard P.; Kincaid, Norman L.; and Hensleigh, Melvin A., 3,739,613.

King, Herbert P., to Deering Milliken Research Corporation. Yarn guide. 3,739,564, Cl. 57-36.000.

Kishi, Masanori: *See—*
Yano, Nobumitsu; Fukushima, Masao; Fukinbara, Itaru; Kishi, Masanori; and Kimura, Kazuyoshi, 3,740,244.

Kishino, Shigeo: *See—*
Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, 3,740,209.

Kisor, Ray C.; Solomon, Thomas P.; and Sutcliffe, Grenville G., to Husky Corporation. Liquid discharge nozzle and splash baffle. 3,739,988, Cl. 239-288.000.

Kitamura, Koichiro: *See—*
Kumabe, Junichiro; Kitamura, Koichiro; and Taniguchi, Osamu, 3,739,665.

Kitchen, Llwyn L., Jr.: *See—*
Cwycyshyn, Walter; and Kitchen, Llwyn L., Jr., 3,739,906.

Kiwalle, Josef; and Sage, Ira H., to Production Technology Inc., mesne. Conversion of variable delivery pump to fixed delivery pump for a friction welder. 3,739,974, Cl. 228-2.000.

Klein, David M.: *See—*
Creapo, Ralph W.; Downham, Roy E.; Eckelaert, Jack F.; Frost, John W.; and Klein, David M., 3,739,491.

Kleinert, Paul: *See—*
Cub, Fritz; Kleinert, Paul; Lammermann, Heinz; and Schacht, Hans, 3,739,916.

Klett, Gene R.; Kokaly, Joseph; Risk, Norman E.; and Smith, Roger M., to Caterpillar Tractor Company. Scraper apron closing mechanism. 3,739,506, Cl. 37-126.0aa.

Kline, Robert J.: *See—*
Kangas, Larry G.; and Kline, Robert J., 3,739,749.

Klingler, George A. Gas particle accumulator, treating and test apparatus. 3,739,627, Cl. 73-28.000.

Klockner-Humboldt-Deutz Aktiengesellschaft: *See—*
Wehren, Peter; Haas, Helmut; and Demel, Gerhard, 3,739,991.

Klockner-Werke AG: *See—*
Wehner, Karl-Heinz; Watermann, Willy; and Bell, Gunter, 3,739,586.

Klug, Leonhard: *See—*
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Klug, Walther H., to PGC Scientifics Corporation. Method of preparing bodies on the basis of urea-formaldehyde resins. 3,740,355, Cl. 260-2.5fp.

Knapp, George F., to MKM Corporation. Smoke-fume exhaust system. 3,739,707, Cl. 98-33.00r.

Knapp, Heinrich; Schwartz, Reinhard; and Eckert, Konrad, to Bosch, Robert, G.m.b.H. Regulator mechanism for fuel injection apparatu. 3,739,758, Cl. 123-119.00r.

Knapp, William A.: *See—*
Carl, David G.; Kietzman, Richard C.; and Knapp, William A., 3,740,259.

Knemeyer, Siegfried: *See—*
Doniger, Jerry; Morse, Carson; and Knemeyer, Siegfried, 3,740,004.

Knoll A.G. Chemische Fabriken: *See—*
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Knox, John D., to Vermont American Corporation. Screwdriver. 3,739,825, Cl. 145-51.000.

Knutson, Knut Raymond; Morichetto, Michele; and Wannfors, P. Magnus, to Incentive Research & Development AB. Atmospheric contaminant collector. 3,740,626, Cl. 317-262.00r.

Kobayashi, Yukio: *See—*
Iwaki, Katsutaro; Mori, Kazumasa; Ishihama, Masaru; and Kobayashi, Yukio, 3,740,637.

Kobinger, Walter: *See—*
Heider, Joachim; Nickl, Josef; Eberlein, Wolfgang; Kobinger, Walter; and Dahms, Gerhard, 3,740,390.

Kochhar, Rajindar K.; Jones, Joseph W., Jr.; and Henry, Raymond M., to Gulf Research & Development Company. Process for the preparation of manufactured articles. 3,740,263, Cl. 117-126.0gr.

Kodis, Rudolfs, to Phillips Petroleum Company. Yarn coating device. 3,739,746, Cl. 118-62.000.

Koei Chemical Co., Ltd.: *See—*
Wada, Yasuo; and Ishihara, Katsumi, 3,740,322.

Koenig, Elmer A., to Sherwood Medical Industries, Inc. Locking stackable container. 3,739,939, Cl. 220-97.00c.

Koetter, Helmut, to Stiegelmeyer, Joh., & Co., G.m.b.H. Adjustable bed. 3,739,406, Cl. 5-68.000.

Kohashi, Tadao: *See—*
Suzuki, Norio; Takiguchi, Yoshimi; and Kohashi, Tadao, 3,740,616.

Kohke, Stephen, to Thomas & Betts Corporation. Bundling strap. 3,739,430, Cl. 24-16.0pb.

Kohke, Stephen J., to Thomas & Betts Corporation. Bundling strap. 3,739,429, Cl. 24-16.0pb.

Kohlhagen, Walter. A.C. motor drive circuit. 3,740,629, Cl. 318-138.000.

Kohn, Kurt W., to Industrial Electronic Engineers, Inc. Cathode ray display tube with blanking grid. 3,740,603, Cl. 313-86.000.

Kokaly, Joseph: *See—*
Klett, Gene R.; Kokaly, Joseph; Risk, Norman E.; and Smith, Roger M., 3,739,506.

Kolec, Robert F.: *See—*
Siebol, George; and Kolec, Robert F., 3,739,682.

Kolomiets, Nikolai Emelyanovich: *See—*
Bogrets, German Nikolaevich; Bondar, Nikolai Pavlovich; Sizonenko, Grigory Alexandrovich; Minakov, Anatoly Gavrilovich; Barsukov, Mikhail Ivanovich; Mitkevich, Grigory Iosifovich; Dudkin, Vyacheslav Fedorovich; Teslya, Andrei Mikhailovich; and Kolomiets, Nkolai Emelyanovich, 3,740,207.

Komatsu, Toshiaki: *See—*
Akiyama, Hisao; Okano, Shigeru; Suzuki, Hiroyuki; Maezima, Kaoru; Komatsu, Toshiaki; and Katsura, Toyozo, 3,740,411.

Kommrusch, Richard S., to Motorola, Inc. Resonant cavity filter temperature compensation. 3,740,677, Cl. 333-82.0bt.

Komori, Shigehiro; Sato, Jiro; and Hattori, Hiroyuki, to Canon Kabushiki Kaisha. Electrophotographic apparatus. 3,740,132, Cl. 355-3.000.

Komori, Shigehiro; Sato, Jiro; and Hattori, Hiroyoki, to Canon Kabushiki Kaisha. Electrophotographic copying apparatus of slit exposure type. 3,740,133, Cl. 355-8.000.

Kondo, Eiji; and Mitsugi, Takashi, to Shionogi & Co., Ltd. Degradation of side chain in sapogenins. 3,740,317, Cl. 195-51.00g.

Kondo, Taizo: *See—*
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Kontes Glass Company: *See—*
Kontes, James C., 3,739,948.

Kontes, James C., to Kontes Glass Company. Variable-volume predetermined-bulk liquid dispenser. 3,739,948, Cl. 222-166.000.

Koon, Homer E., Jr., to Firearm Development, Inc. Shoulder stock and receiver combination for firearms. 3,739,515, Cl. 42-75.00c.

Koppe, Herbert: *See—*
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; and Stockhaus, Klaus, 3,740,401.

Koppe, Herbert; Engelhardt, Albrecht; Ludwig, Gerhard; and Zeile, Karl, to Boehringer Ingelheim G.m.b.H. Bradycardia compositions. 3,740,443, Cl. 424-330.000.

Koppe, Herbert; Engelhardt, Albrecht; and Zeile, Karl, to Boehringer Ingelheim G.m.b.H. Therapeutic compositions and method. 3,740,444, Cl. 424-330.000.

Koppers Company, Inc.: *See—*
Baum, Melvin E.; and Hatton, John A., Jr., 3,740,372.

Kormos, Kalman, to General Signal Corporation. Particle wetting apparatus. 3,740,027, Cl. 259-69.000.

Kosa Gyrogy: *See—*
Helm, Laszlo; Kosa Gyrogy; and Szucas, Attila, 3,739,775.

Kosanovich, Nicholas S.; and Langley, Morley P., to Westinghouse Electric Corporation. Undervoltage trip circuit for circuit breaker. 3,740,738, Cl. 340-248.00b.

Kosbab, Paul O.; Roach, Robert F.; and Laumann, Paul A., to Milprint, Inc. Multiple-layer packaging film with intermediate protective layer. 3,740,306, Cl. 161-214.000.

Kosche, Horst Heinz-Joachim, to Renker GmbH. Photoconductive isocyanate reaction products and deposited layers. 3,740,219, Cl. 96-1.800.

Koskolos, Nick J.: *See—*
McIntosh, Harold A.; Slocum, Gordon K.; and Koskolos, Nick J., 3,740,688.

Kovar, Robert F.: *See—*
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Kowalski, Xavier, to Monsanto Company. Processes for bleaching textiles. 3,740,187, Cl. 8-111.000.

Kraft, Helmut, to Knoll A.G. Chemische Fabriken. N-substituted 2-(2-phenylbicyclo-(2,2,1)-heptyl) carbamates. 3,740,405, Cl. 260-293.530.

Kraftco Corporation: *See—*
Buescher, Theodore H., 3,740,016.

Kraje, Adolf: *See—*
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Kramenic, Zdenek; Vasek, Vitezslav; Miks, Zbynek; and Solik, Zdenek, to Vyzkumny Ustav Bavlnarsky. Control apparatus for wave shed forming means. 3,739,816, Cl. 139-12.000.

Kramer, Hyman. Method of making hinge brackets. 3,739,623, Cl. 72-339.000.

Krauch, Carl Heinrich: *See—*
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Krbechek, Le Roy O.: *See—*
Montgomery, Rex; Bateson, George F.; Corcoran, John D.; and Krbechek, Le Roy O., 3,740,388.

Kreitzburg, Oliver Dean, to Fabricmaster, Inc. Cloth bolt holder. 3,739,918, Cl. 211-44.000.

Krejoi, Joseph, III. Energy absorbing seat assembly. 3,740,091, Cl. 296-68.000.

Krol, Vladimir Alexandrovich: *See—*
Dolgoplosk, Boris Alexandrovich; Tinyakova, Elena Ivanovna; Beilin, Solomon Isaakovich; Makovetsky, Kirill Lvovich; Chernenko, Galina Moiseevna; Ostrovskaya, Irina Yakovlevna; Krol, Vladimir Alexandrovich; and Khrennikova, Elena Konstantinovna, 3,740,382.

Kruel, Martin; Zurawsky, Dieter; and Juntgen, Harald, to Bergwerksverband GmbH. Adsorbent for desulfurization of sulfur dioxide containing waste gases. 3,739,550, Cl. 55-73.

Krupp, Roy Stephen; and Tomko, Lawrence Andrew, to Bell Telephone Laboratories, Incorporated. Time division multiplex switching system utilizing all time division techniques. 3,740,480, Cl. 179-15.0aq.

Kubo, Moritada; and Arimura, Yoshiaki, to Tokyo Shibaura Electric Company, Ltd. Apparatus for inspecting the appearance of products. 3,740,467, Cl. 178-6.800.

Kubota Tekko Kabushiki Kaisha (Kubota, Ltd.): *See—*
Hino, Masamichi; and Yoneda, Rinosuke, 3,739,866.

Kubota, Yasuharu, to Sony Corporation. Image pickup tube. 3,740,458, Cl. 178-5.4st.

Kudale, Jagannath M.; and Lumby, Donovan H., to Land O'Lakes, Inc. Injecting apparatus. 3,739,713, Cl. 99-533.000.

Kuga, Mutsuo; Iwasaki, Tatuo; Kyo, Kayomon; and Yoshioka, Atsuo, to Unitika Kabushiki Kaisha. Polyamide films. 3,740,246, Cl. 117-7.000.

Kuhl, Bernard A., to General Motors Corporation. Cushioned hook for a push-pull type vehicle coupling. 3,740,080, Cl. 280-481.000.

Kuhl, Wilfried; and Klug, Leonhard, to Siemens Aktiengesellschaft. Vacuum switch with magnetically controllable arc. 3,740,507, Cl. 200-144.00b.

Kuhlman Corporation: *See—*
Fisher, John L., 3,740,685.

Kumabe, Junichiro; Kitamura, Koichiro; and Taniguchi, Osamu, to Rikagaku Kenkyusho. Vibrating cutting method and apparatus. 3,739,665, Cl. 82-9.000.

Kummer, Werner: *See—*
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; and Stockhaus, Klaus, 3,740,401.

Kunz, Max, to Ruti Machinery Works, Ltd. Drive arrangement for the terry warps on a terry loom. 3,739,817, Cl. 139-25.000.

Kurachi, Masami Mike. Hygienically shielded rotary toothbrush. 3,739,416, Cl. 15-23.000.

Kurata, Kunio: *See—*
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Kureha Kagaku Kogyo Kabushiki Kaisha: *See—*
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Kurkin, Jury Georgievich: *See—*
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Kuroki, Shigenobu, to Kabushiki Kaisha Honda Rokku. Locking apparatus combined with ignition switch in a motorcar. 3,739,610, Cl. 70-252.000.

Kusnetz, Jacob: *See—*
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Kutay, Robert Stephen: *See—*
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Kuth, Robert: *See—*
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Kwarsick, Edmund J.: *See—*
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L & J Speciality Corporation: *See—*
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La Flame, Frank E., to General Motors Corporation. Viscous fluid clutch. 3,739,891, Cl. 192-58.00c.

LaBarge, Louis P.: *See—*
Garrett, Jim C.; Johnson, Robert H.; Shelton, Jack; and LaBarge, Louis P., 3,740,500.

Lachnit, Friedrich, to Deutsche Babcock & Wilcox Aktiengesellschaft. Multi-wheel underwater excavation machine. 3,740,098, Cl. 299-8.000.

Laden, Karl: *See—*
Chafitz, Steven Roy; and Laden, Karl, 3,739,952.

Lady, Robert M., Sr.; and Steiner, William G., to United States of America. Measuring the distance apparatus for between a workpiece surface and a datum. 3,740,643, Cl. 324-340.000.

Lafon, Louis, to Societe Oriymonde. 1-(3,5-Dialkoxy-phenoxy)-2-(tertiary amino)-ethanes. 3,740,397, Cl. 260-247.70c.

Laggy, William Joseph; and May, Harold Frederick, to Bell Telephone Laboratories, Incorporated. Call distributing system. 3,740,484, Cl. 179-18.00j.

Lahtvee, Toivo; Sethi, Bal Krishan; and Stark, William Hubbard. Process for treating ammonia-base waste sulfite liquor. 3,740,309, Cl. 162-36.000.

Laing, Ralph R.: *See—*
Nuitall, Fleet E.; Laing, Ralph R.; Marshall, James E.; Rhodes, Tony; Sargeant, John E.; and Workman, Larry D., 3,740,056.

L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude: *See—*
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Lamb, Stephen K.: *See—*
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Lambert, Bruce, mesne: *See—*
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Lambrecht, Richard A., to Union Carbide Corporation. System for molding electronic components. 3,739,438, Cl. 29-25.420.

Lammermann, Heinz: *See—*
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Lancer Boss Limited: *See—*
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Land, Cecil W.; and Smith, Willis D., to United States of America, Atomic Energy Commission. Self strain biased ferroelectric electrooptics. 3,740,118, Cl. 350-150.000.

Land O'Lakes, Inc.: *See—*
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Landherr, Lawrence R., to Milwaukee Cylinder Corporation. Hydraulic shock damping device. 3,739,808, Cl. 137-493.000.

Landis, David M.: *See—*
Schag, Ronald H.; and Landis, David M., 3,740,644.

Landrus, James D.; Norris, Allan S.; and Edmunds, John O., to General Motors Corporation. Valving arrangement. 3,739,807, Cl. 137-469.000.

Lane, George C.; Cartwright, Cyril A.; and Elmslie, Keith W., to Warner-Lambert Company, mesne. Sputter coating apparatus with shrouding means. 3,740,327, Cl. 204-298.000.

Lang, William D.: *See—*
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Langenfeld, Frank H.; and Overall, Wilson W., to Monsanto Company. Hydrogen embrittlement inhibitors for organic compositions. 3,740,336, Cl. 252-70.000.

Langieri, Michael, Jr., to Questor Corporation. Music box. 3,740,447, Cl. 84-101.000.

Langley, Morley P.: *See—*
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Lannerd, Robert P.: *See—*
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Lansbury, Robert Clive; and Mann, David, to Imperial Chemical Industries Limited. Method of vacuum metallizing thermoplastic polymeric film and resulting product. 3,740,254, Cl. 117-71.00r.

Larson, Raymond Lee, to General Electric Company. Portable cleaning tool for electrical conductors. 3,739,415, Cl. 15-23.000.

Laser Systems & Electronics, Inc.: *See—*
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Lashar, Walter B., Jr., to American Chain & Cable Company, Inc. Laminated chain link construction. 3,739,571, Cl. 59-84.000.

Lasky, Daniel J., to DS Electro-Optical Incorporated. Photographic plate development system. 3,739,705, Cl. 95-89.00r.

Lassig, Wolfgang: *See—*
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Lassy, Carl O.; and Lassy, William A. Instant two-way lock for work holders. 3,740,048, Cl. 269-59.000.

Lassy, William A.: *See—*
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Latreille, Charles W.: *See—*
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Lattke, Horst G., to Emhart Corporation. Method and apparatus for packaging articles. 3,739,545, Cl. 53-29.000.

Lauer, Cornelius, to General Tire & Rubber Company, The. Electrical wire cutting apparatus. 3,740,517, Cl. 219-68.000.
Laumann, Paul A.: *See—*
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Lawson, Jimmie B.; and Mijnlieff, Pieter F., to Shell Oil Company. Water-thickening polymer-surfactant adsorption product. 3,739,848, Cl. 166-274.000.
Le Feuvre, Thomas: *See—*
Doyle, Edward F.; and Le Feuvre, Thomas, 3,740,057.
Leach Company: *See—*
Gollnick, Cyril R., 3,739,927.
Learn, Leland L; and Moreland, William C., II, to Westinghouse Electric Corporation. Flexible mold ice maker control. 3,739,595, Cl. 62-135.000.
Leblanc, Conrad: *See—*
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Leblond, Jean, to Uniroyal Englebert France S.A. Tire building machine. 3,740,292, Cl. 156-396.000.
Leclercq, Robert: *See—*
Cayphas, Etienne; Leclercq, Robert; and Van-Cauter, Albert, 3,740,205.
Lecoeur, Jacques, to Eclair International. Camera film moving mechanism. 3,740,129, Cl. 352-193.000.
Lee, Art, to General Electric Company. Solid state unipole relay. 3,740,587, Cl. 307-252.00b.
Lee, Hanju: *See—*
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Lee, Raymond, Organization, Inc., The: *See—*
Kankaanpaa, Arvo M., 3,739,678.
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Lee, Richard J.; and Harris, Samuel W., to Standard Oil Company. Reaction products of nitro-nitrito alkanes with alkylene poly-amines and sulfur; and compositions containing the same. 3,740,387, Cl. 260-132.000.
Lee, Shi Kyu, to Boeing Company, The. Sense line coupling structures circuits for magnetic memory device. 3,740,481, Cl. 179-15.0bl.
Lee, William F.: *See—*
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Leitz, Ernst: *See—*
Bromer, Heinz; Meinert, Norbert; and Preuss, Hans-Jurgen, 3,740,241.
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Lemper, Herbert, to Mesta Machine Company. Automatic clamping and locking apparatus. 3,739,618, Cl. 72-239.000.
Leng, Eric Raymond: *See—*
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Lesher, Tommy G., to Hughes Aircraft Company. Magnetic wire electropolishing process improvement. 3,740,324, Cl. 204-129.700.
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Levering, Dewey R.; and Lukach, Carl A., to Hercules Incorporated. Ethylene copolymer composite propellant. 3,740,279, Cl. 149-19.000.
Lewis, David W.: *See—*
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Lewis, William L., to Roberts Company. Variable speed pulley assembly. 3,739,651, Cl. 74-230.17m.
Leymaster, Homer N.: *See—*
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Li, Norman N.; Mohan, Raam R.; and Brusca, Donald R., to Esso Research and Engineering Company. Process for the reaction and separation of components utilizing a liquid surfactant membrane and an enzyme catalyst. 3,740,315, Cl. 195-2.000.
Li, Norman N., to Esso Research and Engineering Company. Dispersion removal by liquid membrane process. 3,740,329, Cl. 210-21.000.
Liberty, Joseph C., Jr. Replaceable annular gear. 3,739,892, Cl. 192-67.00r.
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Haraszti, Tegze, 3,740,576.
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Liebergott, Norman; Clayton, David W.; and deMontigny, Raimbault M. A. T.; deceased (by deMontigny, Maseleine C.; Tache, Arthur De Gaspe; and Burgess, Bernard W.; executors), to Pulp and Paper Research Institute of Canada. Delignification of cellulosic pul with ammonia gas followed by heating in the presence of oxygen. 3,740,311, Cl. 162-65.000.
Liebig, Preston Dean, to Combustion Engineering, Inc. Modular air polluting control scrubber bed. 3,739,555, Cl. 55-233.000.
Liepert, Reinhold: *See—*
Kaufman, Peter; and Liepert, Reinhold, 3,739,441.
Lietzau, Werner. Process and device for making standard analysis gas. 3,740,195, Cl. 23-232.00r.
Light, George S. System for preventing scale formation when heating fluids containing scale-forming ingredients. 3,739,839, Cl. 165-1.000.
Limberger, Walter. Copying apparatus. 3,740,139, Cl. 355-100.000.
Lindgren, Mats E. G., to Gelco-Project Lindgren & Co. Handelsbolag. Method and apparatus for continuously preparing a gel. 3,739,794, Cl. 137-1.000.
Lindner, Ernst: *See—*
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Linfield, Robert F.; Farstad, Arnold J.; and Allen, James W., to Westinghouse Electric Corporation. Communication system. 3,740,488, Cl. 179-82.000.
Linke, Horst; Karsten, Werner; and Albrecht, Helmut, to Gewerkschaft Eisenhutte Westfalia. Mining apparatus. 3,739,587, Cl. 61-45.00d.
Liotta, Domingo S.: *See—*
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Little, James E. Turf plug remover. 3,739,857, Cl. 172-22.000.
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Long, Alden Owen, Jr.; and Shughart, Mervin Leonard, to AMP Incorporated. Apparatus for inserting terminals into panel members. 3,739,446, Cl. 29-203.00b.
Long, John H.: *See—*
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Long, William D.; Fell, Ferol S.; Wells, Bernard L.; and Prichard, John P., 1/2 to Hesston Corporation and 1/2 to Field Queen, Incorporated. Transmission for forage harvesters and the like. 3,739,559, Cl. 56-13.900.
Loof, Nils Oskar Tore. Wood-turning machine. 3,739,822, Cl. 142-1.000.
Loving, Robert O., Jr., to Motorola, Inc. Temperature compensated amplifying circuit. 3,740,658, Cl. 330-23.000.
Lowrance, Darrell J., to Lowrance Electronics Manufacturing Corporation. Submerged object warning apparatus for ships. 3,740,705, Cl. 340-3.00r.
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Lundberg, Borje Oskar, to AB Grindex. Machine for the sharpening of impact rock drills with chisel cutting edges. 3,739,529, Cl. 51-92.00r.

Lundgren, Edward Thomas. Multiple image optical device. 3,740,112, Cl. 350-96.00j.

Lundgren, Ken C. Cartridge catcher. 3,739,685, Cl. 89-33.00f.

Lutz, Russell L. Hydraulic brake mechanism. 3,739,579, Cl. 60-54.60r.

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Lynch, Charles Andrew, Jr.; and Orwoll, Edward Francis, to FMC Corporation. Fireproofing cellulose with complexes of heavy metal salts of acid phosphate esters. 3,740,264, Cl. 117-136.000.

Lynde, Edward A. Safety lock assembly. 3,740,090, Cl. 296-35.00r.

Lynn, William E. Coin tube opener. 3,739,966, Cl. 225-96.500.

Lyon & Healy, Inc.: *See—*
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MacDaniel, Gene D., to Sweetheart Plastics, Inc. Insulated plastic bucket. 3,739,976, Cl. 229-43.000.

MacDonald, Donald M., to International Paper Company. Detergent formulation containing cured 6-carboxy cellulose as a sequestrant. 3,740,339, Cl. 252-135.000.

Macone, Frederick W., to Avant Incorporated. Photographic film processing interval timing device. 3,739,489, Cl. 34-109.000.

Maeda, Kenji: *See—*
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Maekawa, Tadashi; Suzuki, Akira; and Haramura, Shigenori, to Aisin Seiki Kabushiki Kaisha. Fluid power steering apparatus. 3,739,868, Cl. 180-79.20r.

Maez, Philbert Jay; Thompson, Richard D.; and Beeley, Michael G., to McGraw-Edison Company. Garment finishing hanger and loader therefor. 3,739,960, Cl. 223-73.000.

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Magid, Louis, to Hoffmann-La Roche Inc. Vitamin complexes of niacinamide, riboflavin and sodium ascorbate. 3,740,432, Cl. 424-252.000.

Maher, John F., to United Aircraft Corporation. Aircraft cabin outflow valve with torque reduction and noise abatement means. 3,740,006, Cl. 244-129.00d.

Mahlmann, James Patrick, to General Foods Corporation. Process for decaffeinating coffee. 3,740,230, Cl. 99-69.000.

Maison, Richard L., to Rohr Industries, Inc. Thrust reversing apparatus. 3,739,582, Cl. 60-226.00a.

Makovetsky, Kirill Lvovich: *See—*
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Maldonado, Juan Ramon, to Bell Telephone Laboratories, Incorporated. Coarse grain polycrystalline ferroelectric ceramic optical memory system. 3,740,734, Cl. 340-173.01m.

Malis, Jerry L.; and Rosenthale, Marvin E., to American Home Products Corporation. Anti-ulcer therapy. 3,740,436, Cl. 429-319.000.

Mallard, James B., to Form Crete, Inc., mesne. Method and apparatus for applying a coating to a tubular member. 3,740,291, Cl. 156-392.000.

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Maloney, William R.; and Margulis, Harry, to Addressograph-Multigraph Corporation. Micro-image viewer-printer machine. 3,740,136, Cl. 355-43.000.

Maltesky, Albert: *See—*
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Manber, Solomon; McGovern, Michael J.; and Stupar, Wesley E., to Alphanumeric, Incorporated. Scanning correction methods and systems utilizing stored digital correction values. 3,740,608, Cl. 315-27.60d.

Manion, Jean P.; and Davies, Daniel J., to Allis-Chalmers Manufacturing Company. Surface fluorinated hydrogen containing material and process for making. 3,740,256, Cl. 117-93.1cd.

Manion, Jean P.; and Davies, Daniel J., to Allis-Chalmers Corporation. Surface fluorinated hydrogen containing material and process for making. 3,740,325, Cl. 204-169.000.

Mann, David: *See—*
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Manning, Lindley; Mc Kee, Robert B.; Zemke, Hubert; and Douglas, Bruce M., to Tensor Corporation, The. Elongated lightweight structure. 3,740,301, Cl. 161-58.000.

Marano, Louis G., to Twin Disc, Incorporated. Method and machine for shaving a conical gear. 3,739,686, Cl. 90-1.600.

Marathon Oil Company: *See—*
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Marburger, Heinz: *See—*
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Marconi Company Limited: *See—*
Green, William Harry Francis; and Terry, John Brian, 3,740,479.

Marconi Company Limited, The: *See—*
Sosin, Boleslaw Marian, 3,740,756.

Margulis, Harry: *See—*
Maloney, William R.; and Margulis, Harry, 3,740,136.

Marietta Scientific Controls, Inc.: *See—*
Worden, Donald A., 3,739,813.

Marin, Glenn R., to Carborundum Company, The. Disc brake with resilient torque connection. 3,739,883, Cl. 188-71.100.

Marom, Emanuel, to Bendix Corporation, The. Increased field of view detector array. 3,740,749, Cl. 343-100.0le.

Marshall, James E.: *See—*
Nuitall, Fleet E.; Laing, Ralph R.; Marshall, James E.; Rhodes, Tony; Sargeant, John E.; and Workman, Larry D., 3,740,056.

Martin, David R.; and Sauter, Walter A. Servo motor driven RF attenuator. 3,740,627, Cl. 318-16.000.

Martin, Jerry Roy, to Abbott Laboratories. Antipyretic agent. 3,740,425, Cl. 424-181.000.

Martin, Lloyd W., to Minnesota Mining and Manufacturing Company. Card stacking mechanism. 3,739,925, Cl. 214-7.000.

Maruyama, Dennis T.: *See—*
Dion, C. Norman; and Maruyama, Dennis T., 3,740,736.

Maruyama, Shoji; Oida, Etsuo; Hamada, Takao; Asami, Tomiaki; and Iwata, Susumu, to Kabushiki Kaisha Ricoh. Diazotype photographic copying material for heat development. 3,740,229, Cl. 96-91.00r.

Maschinenfabrik Lorenz Aktiengesellschaft: *See—*
Deibel, Erwin, 3,739,450.

Massachusetts Institute of Technology: *See—*
Wilson, David G., 3,739,910.

Materials Handling Systems, Inc.: *See—*
Howard, William E., 3,739,714.

Mathewson, Myron: *See—*
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Matrone, John L.: *See—*
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Matsuo, Shintaro: *See—*
Ueda, Syoji; Muto, Kazuhiko; and Matsuo, Shintaro, 3,740,211.

Matsushima, Hiroshi; Arimura, Ichiro; Goto, Hiroshi; Nakao, Yoshikazu; and Oziro, Hazime, to Matsushita Electric Industrial Co., Ltd. AC amplifier system. 3,740,659, Cl. 330-25.000.

Matsushita Electric Industrial Co., Ltd.: *See—*
Amakawa, Saichi; Miyamoto, Osamu; Kawamoto, Akito; and Kawai, Hiroshi, 3,739,670.
Matsushima, Hiroshi; Arimura, Ichiro; Goto, Hiroshi; Nakao, Yoshikazu; and Oziro, Hazime, 3,740,659.
Mohri, Etsuzo; Saito, Hiroshi; Hayakawa, Toshio; and Ochiai, Shigeru, 3,739,650.
Suzuki, Norio; Takiguchi, Yoshimi; and Kohashi, Tadao, 3,740,616.
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Matsushita Electronics Corporation: *See—*
Teramoto, Iwao; Nakashima, Shinichi; Iwasa, Hitoo; and Mitai, Yukio, 3,740,617.

Mattel, Inc.: *See—*
Chang, Richard S., 3,740,032.
Fox, James H., 3,739,521.
Nuitall, Fleet E.; Laing, Ralph R.; Marshall, James E.; Rhodes, Tony; Sargeant, John E.; and Workman, Larry D., 3,740,056.

Matthews, Jas H., & Co: *See—*
Winkelman, Earl A.; and Fitzsimmons, Paul A., 3,739,662.

Matthews, Raymond A., to Reynolds Metals Company. Apparatus for and method of forming a tubular metal blank into a tapered tube on a tapered mandrel. 3,739,616, Cl. 72-57.000.

Maurer, Albrecht: *See—*
Muller, Ernst; Maurer, Albrecht; and Logan, Arthur D., 3,739,677.

Maxey, Edwin Morgan, to General Tire & Rubber Company, The. Method of making a composite product of strengthened, water-blown, flexible polyurethane foams. 3,740,283, Cl. 156-162.000.

May, Harold Frederick: *See—*
Laggy, William Joseph; and May, Harold Frederick, 3,740,484.

May, Paul H.: *See—*
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Mayer, Oscar, & Company, Inc.: *See—*
Grindrod, Paul E.; Goller, Robert L.; Radloff, Harry L.; and Seiferth, Oscar E., 3,740,237.

Mayne, William Harry, to Petty Geophysical Engineering Company. Apparatus for the attenuation of noise from underwater seismic sources. 3,739,869, Cl. 181-.50h.

Mc Kee, Robert B.: *See—*
Manning, Lindley; Mc Kee, Robert B.; Zemke, Hubert; and Douglas, Bruce M., 3,740,301.
McAdams, Arthur C., Jr.; and Tomaselli, Vincent A., to Sprague Electric Company. Monolithic capacitor having corner internal electrode terminations. 3,740,624, Cl. 317-258.000.
McAlonie, Robert Francis; Sautter, Helmuth Otto; and Trimble, David Carlaw, to Bell Telephone Laboratories, Incorporated. Tone ringer. 3,740,490, Cl. 179-84.0vf.
McCaully, Ronald J.; and Gochman, Carl, to American Home Products Corporation. 2-Benzimidazolecarboxamides. 3,740,413, Cl. 260-309.200.
McColgan, John M.: *See—*
Kelsey, David H.; Putzier, Charles W.; and McColgan, John M., 3,740,290.
McCord Corporation: *See—*
Robins, Charles I., 3,740,062.
McCord, Henry L.: *See—*
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Platt, Richard Bibby; and McCue, Bernard Beverly, 3,740,342.
McCulloch Corporation: *See—*
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McDonald, John J., to Motter, John C., Printing Press Co. Automatic splicing rollstand. 3,740,296, Cl. 156-504.000.
McDonnell Douglas Corporation: *See—*
Bland, Aubrey M.; and Zimmermann, Vincent H., 3,739,580.
McEachron, John C.: *See—*
Schindler, Edgar C.; and McEachron, John C., 3,740,451.
McFarland, Archie Rae, to Beehive Machinery Inc. Apparatus for producing de-boned meat products. 3,739,994, Cl. 241-74.000.
McGlashan, Andrew David, Sr., to Donnelley, R. R., & Sons Company. Method of making resists to be used in etching rotogravure cylinders for four-color printing. 3,740,222, Cl. 96-30.000.
McGovern, Michael J.: *See—*
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McGraw-Edison Company: *See—*
Buckley, Norman A.; and Rasmussen, Peter D., 3,739,496.
Maez, Philbert Jay; Thompson, Richard D.; and Beeley, Michael G., 3,739,960.
McIntosh, Harold A.; Slocum, Gordon K.; and Koskolos, Nick J., to Robertshaw Controls Company. Fusible link assembly. 3,740,688, Cl. 337-414.000.
McIntyre, James E.; Piccone, Dante E.; and Somos, Istvan, to General Electric Company. High arrangement frequency SCR gating. 3,740,584, Cl. 307-252.00g.
McKay, Cameron E.: *See—*
Barker, George P.; and McKay, Cameron E., 3,739,503.
McKee, Lloyd Dale, Jr. Breading machine apparatus. 3,739,743, Cl. 118-19.000.
McKeegan, James J.; Cheney, Oliver F.; and Bash, Ignatius F., to Alcotronics Corporation. Time accounting apparatus. 3,740,759, Cl. 346-44.000.
McLusker, Joseph Henry; and Perlman, Stuart Stanley, to RCA Corporation. Power control system employing piezo-ferroelectric devices. 3,740,582, Cl. 307-252.00n.
McMahon, Maurice T., Jr., to International Business Machines Corporation. Testing of non-linear circuits by accumulated result comparison. 3,740,646, Cl. 324-73.00r.
McManus, John B., Jr.: *See—*
O'Toole, Jerome M.; and McManus, John B., Jr., 3,739,604.
McNair, Robert E., to Westinghouse Electric Corporation. Gas turbine exhaust system. 3,739,872, Cl. 181-33.0hb.
McNamara, Gerald J., to Lee, Raymond, Organization, Inc., The. Garden tool. 3,739,562, Cl. 56-400.060.
McRobert, Leon R., to FMC Corporation. Storage vehicle with bin dumper. 3,739,929, Cl. 214-313.000.
Medical Electroscience & Pharmaceuticals, Inc.: *See—*
Pfleger, Frederick W., 3,739,779.
Medicor Muvek: *See—*
Helm, Laszlo; Kosa Gyrogy; and Szucas, Attila, 3,739,775.
Meeussen, Louis Achilles; and Huybrechts, Roger Joseph, to Gavaert-Agfa N.V. Reproduction of multicolour scenes and prints in multicolour television. 3,740,457, Cl. 178-5.4cd.
Meidensha Electric Mfg. Co. Ltd.: *See—*
Hanada, Keiichi; Saito, Kimihiko; and Iwase, Akikazu, 3,739,979.
Meier-Windhorst, Christian August, to Artos Dr.-Ing. Meier-Windhorst Kommanditgesellschaft. Process and apparatus for continuous heat treatment of porous heavy webs. 3,739,483, Cl. 34-23.000.
Meinert, Norbert: *See—*
Bromer, Heinz; Meinert, Norbert; and Preuss, Hans-Jurgen, 3,740,241.
Melone, Anthony. Resilient earring including means limiting pressure on the ear lobe. 3,739,599, Cl. 63-14.00d.
Melvin, Waymon A., Jr., to Westinghouse Electric Corporation. Control apparatus for an environmental data system. 3,740,718, Cl. 340-168.00s.
Memorex Corporation: *See—*
Dion, C. Norman; and Maruyama, Dennis T., 3,740,736.
Youngstrom, Jerry R.; Anderson, Wilfred K.; Fletcher, Martin Wallace; Strobele, Caljon H.; and Taylor, Kenneth I., 3,740,463.
Mercer, Robert L.; and Simmons, Edward C., to General Motors Corporation. Dispenser having a bimetal actuated metering valve assembly. 3,739,942, Cl. 222-54.000.
Meripol, Robert B., to Dresser Industries, Inc. Gripping member for well tool. 3,739,849, Cl. 166-216.000.
Merrill, Stewart H.: *See—*
Contois, Lawrence E.; and Merrill, Stewart H., 3,740,218.
Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung: *See—*
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Messias, Harold F.: *See—*
O'Brien, Paul J.; and Messias, Harold F., 3,740,707.
Mesta Machine Company: *See—*
Lemper, Herbert, 3,739,618.
Meyer, Heinz-Hermann: *See—*
Eichers, Ursula; Hahmann, Otto; Meyer, Heinz-Hermann; Rombusch, Konrad; and Rossbach, Manfred, 3,740,380.
Miarkowaki, Dzeslaw; and Smith, Edward Leslie, to Baker Perkins Limited. Inking pump mechanisms for printing machines. 3,739,721, Cl. 101-366.000.
Michaels, Fred G.: *See—*
Williams, Richard D.; and Michaels, Fred G., 3,739,656.
Michalik, Edmund R., to PPG Industries, Inc. Method of and an apparatus for controlling edge flare in thermal cutting. 3,739,963, Cl. 225-2.000.
Mijnlieff, Pieter F.: *See—*
Lawson, Jimmie B.; and Mijnlieff, Pieter F., 3,739,848.
Miks, Zbynek: *See—*
Kramenic, Zdenek; Vasek, Vitezslav; Miks, Zbynek; and Solik, Zdenek, 3,739,816.
Milewski, Victor, to Valeron Corporation, The. Automatic cutting tool adjustment means and method. 3,740,161, Cl. 408-158.000.
Millen, Harold R. Tripod accessory attachment device. 3,740,012, Cl. 248-201.000.
Miller, Elbert H., to Caterpillar Tractor Company. Turbocharger cooling and lubricating system. 3,740,170, Cl. 417-407.000.
Miller, Henry F.; and Bredimus, Robert L., to Uniroyal, Inc. Device for testing power transmission components. 3,739,632, Cl. 73-136.00a.
Miller, Lawrence J., to Caterpillar Tractor Company. Tractor-scraper with moveable floor. 3,739,504, Cl. 37-124.000.
Miller, Robert P., Jr., to Sweco, Inc. Screening and aerating concentrator. 3,739,912, Cl. 210-63.000.
Miller, Walter; and Feichtinger, Kurt, to Heidenhain, Johannes. Measuring system. 3,740,134, Cl. 353-41.000.
Miller, William R.: *See—*
Johnson, Wayne F.; and Miller, William R., 3,740,760.
Millmaster Onyx Corporation: *See—*
Kaplan, Saul; Prodo, Kenneth W.; and Shay, Edward G., 3,740,351.
Milo, William C., to United States of America. Liquid cryogen detector. 3,740,740, Cl. 340-244.00r.
Milprint, Inc.: *See—*
Kosbab, Paul O.; Roach, Robert F.; and Laumann, Paul A., 3,740,306.
Milwaukee Cylinder Corporation: *See—*
Landherr, Lawrence R., 3,739,808.
Minakov, Anatoly Gavrilovich: *See—*
Bogrets, German Nikolaevich; Bondar, Nikolai Pavlovich; Sizonenko, Grigory Alexandrovich; Minakov, Anatoly Gavrilovich; Barsukov, Mikhail Ivanovich; Mitkevich, Grigory Iosifovich; Dudkin, Vyacheslav Fedorovich; Teslya, Andrei Mikhailovich; and Kolomiets, Nkolai Emelyanovich, 3,740,207.
Mine Safety Appliances Company: *See—*
Temple, Ernest E., 3,739,673.
Mini-Products, Inc.: *See—*
Monola, Wilbert E., 3,740,753.
Minks, Floyd M. Blocking oscillator with current mode transformer. 3,740,589, Cl. 307-275.000.
Minnesota Mining and Manufacturing Company: *See—*
DeVries, Richard Alan, 3,739,698.
Kangas, Larry G.; and Kline, Robert J., 3,739,749.
Martin, Lloyd W., 3,739,925.
Olson, Melvin M., 3,740,414.
Minolta Camera Kabushiki Kaisha: *See—*
Akiyama, Kazuhiro, 3,739,704.
Miskolczy, Gabor; and Kaiser, Robert, to Avco Corporation. Shaft seal. 3,740,060, Cl. 277-80.000.
Mitai, Yukio: *See—*
Teramoto, Iwao; Nakashima, Shinichi; Iwasa, Hitoo; and Mitai, Yukio, 3,740,617.
Mitchell, David C.; and Latreille, Charles W., to D.A.B. Industries, Inc. Method for adhering friction material to ring-like element. 3,740,512, Cl. 219-10.410.
Mitchell, Douglas G., to Technicon Instruments Corporation. Method and apparatus for sample analysis by atomic spectroscopy. 3,740,145, Cl. 356-87.000.
Mitchell, Kim L.: *See—*
Pelton, Charles R.; and Mitchell, Kim L., 3,739,870.
Mitkevich, Grigory Iosifovich: *See—*
Bogrets, German Nikolaevich; Bondar, Nikolai Pavlovich; Sizonenko, Grigory Alexandrovich; Minakov, Anatoly Gavrilovich; Barsukov, Mikhail Ivanovich; Mitkevich, Grigory Iosifovich; Dudkin, Vyacheslav Fedorovich; Teslya, Andrei Mikhailovich; and Kolomiets, Nkolai Emelyanovich, 3,740,207.

Mitoff, Stephen P., to General Electric Company. Method of charging sodium-sulfur cell. 3,740,268, Cl. 136-6.0fs.

Mitsubishi Jidosha Kogyo Kabushiki Kaisha: *See*—
Nagase, Yukihiko; Yoshida, Mitsutoshi; Kimoto, Yohichi; and Sakano, Toyoshi, 3,739,577.

Mitsubishi Jukogyo Kabushiki Kaisha: *See*—
Ueda, Syoji; Muto, Kazuhiko; and Matsuo, Shintaro, 3,740,211.

Mitsubishi Rayon Company Limited: *See*—
Okumura, Munehiro; Umemura, Eiji; Nishikawa, Tatsuaki; Nishikawa, Nobuaki; and Shimoyama, Hiroyuki, 3,740,304.

Mitsugi, Takashi: *See*—
Kondo, Eiji; and Mitsugi, Takashi, 3,740,317.

Miyagawa, Fumihiro, to Ricoh Co., Ltd. Data recording device for use with cameras. 3,739,697, Cl. 95-1.100.

Miyamoto, Osamu: *See*—
Amakawa, Saichi; Miyamoto, Osamu; Kawamoto, Akito; and Kawai, Hiroshi, 3,739,670.

Miyata, Akira; Okubo, Hideyo; Tomita, Chikayoshi; and Suzuki, Akio, to Nippon Kokan Kabushiki Kaisha. Molten salt electroplating method. 3,740,323, Cl. 204-25.000.

MKM Corporation: *See*—
Knapp, George F., 3,739,707.

Moatti, Samuel Georges. Self-cleaning filter elements. 3,739,914, Cl. 210-333.000.

Mobil Oil Corporation: *See*—
Campbell, Craig C., 3,740,419.

Modicon Corporation: *See*—
Greenberg, Michael P.; Fletcher, William E.; and Morley, Richard E., 3,740,722.

Moen, Selfred. Hinge. 3,739,425, Cl. 16-189.000.

Moerkens, Jozef Cornelis, to U.S. Philips Corporation. Arrangement for the ignition and alternating current supply for a gas-and/or vapour discharge lamp. 3,740,609, Cl. 315-200.000.

Mogil, Bernard: *See*—
Aasen, Torulf F.; Mogil, Bernard; and Schaffel, Martin, 3,739,800.

Mohan, Raam R.: *See*—
Li, Norman N.; Mohan, Raam R.; and Brusca, Donald R., 3,740,315.

Mohr, Theo Richard; and Volf, Vladimir. Restrainer and metabolism cage for test animals. 3,739,751, Cl. 119-103.000.

Mohri, Etsuzo; Saito, Hiroshi; Hayakawa, Toshio; and Ochiai, Shigeru, to Matsushita Electric Industrial Co., Ltd. UHF tuner. 3,739,650, Cl. 74-10.600.

Molly, Patrick C.: *See*—
Roberts, Carroll R.; Glidden, Ramon L.; and Molly, Patrick C., 3,739,625.

Monestere, Martin, Jr.; and Pronier, Frederick, to Bard, C. R., Inc. Catheter introduction system. 3,739,778, Cl. 128-214.400.

Monola, Wilbert E., to Mini-Products, Inc. Multiband quad and loop antenna. 3,740,753, Cl. 343-744.000.

Mons, Johannes Jan, to U.S. Philips Corporation. Arrangements for tuning a receiver. 3,740,651, Cl. 325-464.000.

Monsanto Company: *See*—
Burgener, Willis R., 3,740,652.
Hoyt, Michael T.; Junker, Bernhard T.; Hedrick, Ross M.; and Breeding, Terry G., 3,740,177.
Kowalski, Xavier, 3,740,187.
Langenfeld, Frank H.; and Overall, Wilson W., 3,740,336.
Reichard, Thomas E., 3,740,563.

Montecatini Edison S.p.A.: *See*—
Di Drusco, Giovanni; and Galli, Paolo, 3,740,381.

Montgomery, Rex; Bateson, George F.; Corcoran, John D.; and Krbechek, Le Roy O., to General Mills, Inc. Preparation of carboxyalkyl derivatives of polygalactomannans. 3,740,388, Cl. 260-209.00r.

Moog Industries, Inc.: *See*—
Fister, Louis P.; Fitch, Lawrence H.; Jeney, George K.; and Scheublein, William A., 3,740,069.

Moore, George E.; and Tomlinson, Lee H., to General Electric Company. Burner-flame arrester for burning off-gas from a boiling water reactor power plant. 3,740,313, Cl. 176-37.000.

Moore, Glenn E.; and Guertin, Robert W., to Dover Corporation. Mixing valve for fluid dispensing nozzle. 3,739,945, Cl. 222-129.000.

Moore, Harold Edward, to McCulloch Corporation. Chain saw safety method and apparatus. 3,739,475, Cl. 30-383.000.

Moore, Ralph J. Automatic loading cross-bow. 3,739,765, Cl. 124-25.000.

Moore, Robert A.; and Nelson, Theodore M., to Westinghouse Electric Corporation. Yig filter having a single substrate with all transmission line means located on a common surface thereof. 3,740,675, Cl. 333-73.00r.

Morales, Juan G.: *See*—
Soloway, Samuel B.; and Morales, Juan G., 3,740,428.
Soloway, Samuel B.; and Morales, Juan G., 3,740,429.

Moray, Forest J. Electrical wire terminal. 3,740,702, Cl. 339-223.00s.

Moreines, Harold: *See*—
Strole, John C.; Szerenyi, Laszlo I.; and Moreines, Harold, 3,740,653.

Moreland, William C., II: *See*—
Learn, Leland L; and Moreland, William C., II, 3,739,595.

Morgan, David Keith: *See*—
Heuner, Robert Charles; Niemiec, Stanley Joseph; and Morgan, David Keith, 3,740,717.

Morgan, Ora B., Jr., to United States of America, Atomic Energy Commission. Multi-ampere duopigatron ion source. 3,740,554, Cl. 250-41.9se.

Mori, Kazumasa: *See*—
Iwaki, Katsutaro; Mori, Kazumasa; Ishihama, Masaru; and Kobayashi, Yukio, 3,740,637.

Mori, Tushiyoki, to Olympus Optical Co., Ltd. Bendable tube of an endoscope. 3,739,770, Cl. 128-6.000.

Morichetto, Michele: *See*—
Knutson, Knut Raymond; Morichetto, Michele; and Wannfors, P. Magnus, 3,740,626.

Moriconi, Joseph H.: *See*—
Jacknow, Burton B.; and Moriconi, Joseph H., 3,740,334.

Morin, Eugene P. Molded golf shoe heel and instep structure and method of making same. 3,739,499, Cl. 36-2.5ah.

Morley, Richard E.: *See*—
Greenberg, Michael P.; Fletcher, William E.; and Morley, Richard E., 3,740,722.

Moroz, William J.; Anderson, Gerald W.; and Withstandley, Victor D., to Research Corporation. Portable dust analyzer. 3,740,148, Cl. 356-102.000.

Morris, Philip, Incorporated: *See*—
Stephens, William K., Jr., 3,739,785.

Morse, Carson: *See*—
Doniger, Jerry; Morse, Carson; and Knemeyer, Siegfried, 3,740,004.

Moser, Paul: *See*—
Hug, Hermann; Moser, Paul; Schwarz, Hans; and Zimmermann, Max, 3,740,168.

Motorola, Inc.: *See*—
Huber, William B., 3,740,493.
Kommrusch, Richard S., 3,740,677.
Loving, Robert O., Jr., 3,740,658.
Slavik, William H., 3,740,611.
Wilcox, Milton E., 3,740,471.

Motter, John C., Printing Press Co.: *See*—
McDonald, John J., 3,740,296.

Moulton, James A., to North American Aviation, Inc. Monopulse receiver system. 3,740,750, Cl. 343-119.000.

Msysui, Tsutomu: *See*—
Takahashi, Yasuyoshi; Oshiro, Nobuhiko; Msysui, Tsutomu; Tomokubo, Yoshiaki; and Asaka, Norishisa, 3,740,536.

Muehlberger, Erich, to Geotel, Inc. Plasma torch, and electrode means therefor. 3,740,522, Cl. 219-121.00p.

Mulasmajic, Dzemal. Prime mover system having rotating and reciprocating multi-amplification. 3,740,597, Cl. 310-80.000.

Mulfinger, Eckhard: *See*—
Schroter, Carl; and Mulfinger, Eckhard, 3,740,299.

Muller, Ernst; Maurer, Albrecht; and Logan, Arthur D., to Bizerha-Werke Wilhelm Krant KG. Slicing machine. 3,739,677, Cl. 146-102.00b.

Munnerlyn, Charles R., to Tropel, Inc. Surface measurement by interferometer. 3,740,150, Cl. 356-109.000.

Munoa, Pablo E.; and Simonin, Eduardo M., to Sociedad Anonima Alba, Fabrica de Pinturas, ESMALTES Y BARNIC & S. Cellular polymeric material, a process for its preparation and a coating material which contains such polymeric material. 3,740,356, Cl. 260-2.5b.

Murai, Satoshi; and Tomioka, Chikanori, to Kakenyaku Kako Kabushiki Kaisha. Diamino-s-triazines. 3,740,399, Cl. 260-249.800.

Murata Machinery Ltd.: *See*—
Natsui, Isamu; and Ueda, Yutaka, 3,739,996.

Murdock, Keith Chadwick, to American Cyanamid Company. 3,6-Bis-(dialkylaminoalkoxy)acridines. 3,740,403, Cl. 260-279.00r.

Murfree, James A., Jr.: *See*—
Sandlin, Billy J.; Duncan, William A.; and Murfree, James A., Jr., 3,740,198.

Murr, Julius W. Universally pivotal tow hitch apparatus. 3,740,078, Cl. 280-478.00r.

Murray, Herbert C.: *See*—
Fonken, Gunther S.; Herr, Milton E.; and Murray, Herbert C., 3,740,408.

Murty, Dasika R. K.: *See*—
Rajamani, Puthucode N.; Stern, Howard S.; Murty, Dasika R. K.; and Haney, Thomas A., 3,740,418.

Muto, Kazuhiko: *See*—
Ueda, Syoji; Muto, Kazuhiko; and Matsuo, Shintaro, 3,740,211.

Myburgh, Henry Hugo: *See*—
Smith, Leon; and Myburgh, Henry Hugo, 3,740,310.

Myhr, Lars H.; and Svensson, Lars-Ake E., to Borgs Fabriks Aktiebolag. Means and method for regulating a hydraulic energy absorbing device. 3,739,884, Cl. 188-296.000.

N L Industries, Inc.: *See*—
White, Edward L.; Schwarcz, Joseph; and Lang, William D., 3,740,245.

Nagase, Yukihiko; Yoshida, Mitsutoshi; Kimoto, Yohichi; and Sakano, Toyoshi, to Mitsubishi Jidosha Kogyo Kabushiki Kaisha. Hydraulic systems. 3,739,577, Cl. 60-385.000.

Nagel, Ernst, to Luwa AG. Method and apparatus for cleaning the spinning rotors of open-end spinning equipment. 3,739,565, Cl. 57-58.890.

Nagourney, Alphonse: *See*—
Gaquer, George E.; Gaquer, John G.; and Nagourney, Alphonse, 3,739,771.

Nahay, Lawrence Paul, to RCA Corporation. M-ARY FSK digital modulator. 3,740,669, Cl. 332-11.00r.

Nail, Walter Philip. Inflatable support structure. 3,740,095, Cl. 297-454.000.

Najvar, Daniel J.: *See—*
Patrick, Frank D.; and Najvar, Daniel J., 3,740,353.
Nakada, Yasuo; and Tanaka, Yoshinori, to Sony Corporation. Data input key apparatus. 3,740,744, Cl. 340-365.00c.
Nakamura, Akihide; Ito, Iko; Kondo, Taizo; and Inamura, Keizo, to Sumitomo Chemical Co., Ltd. and Kansai Paint Company, Limited. Coating composition comprising a copolymer of vinyl chloride and an unsaturated glycidyl compound. 3,740,370, Cl. 260-31.80u.
Nakao, Yoshikazu: *See—*
Matsushima, Hiroshi; Arimura, Ichiro; Goto, Hiroshi; Nakao, Yoshikazu; and Oziro, Hazime, 3,740,659.
Nakashima, Shinichi: *See—*
Teramoto, Iwao; Nakashima, Shinichi; Iwasa, Hitoo; and Ishitai, Yukio, 3,740,617.
Nalco Chemical Company: *See—*
Hyde, James A.; and Youngs, Roger W., 3,739,795.
Narayanan, Venkatachala L.: *See—*
Haugwitz, Rudiger D.; and Narayanan, Venkatachala L., 3,740,396.
Natelson, Samuel, to Rohe Scientific Corporation. Peristaltic pump. 3,740,173, Cl. 417-475.000.
National College of Agricultural, The Governors of the: *See—*
Kilgour, John; Payne, Peter Charles John; Reid, Stewart; and Everett, Erice George, 3,739,907.
National Forge Company: *See—*
Papen, Eduard L. J., 3,740,169.
Natman, Solomon; and Cohen, Robert A., to Stance Industries, Inc. Non-snagging hairbrush. 3,739,419, Cl. 15-187.000.
Natsui, Isamu; and Ueda, Yutaka, to Murata Machinery Ltd. Measuring apparatus of total yarn length wound in package on a yarn winder. 3,739,996, Cl. 242-39.000.
Naujoks, Erich; and Rommel, Heinz, to Artos Dr.-Ing. Meier-Windhorst Kommanditgesellschaft. Process and apparatus for the continuous treatment of pile fabrics. 3,739,436, Cl. 26-2.00r.
Neebel, Richard R.: *See—*
Doerfer, Richard F.; Leymaster, Homer N.; and Neebel, Richard R., 3,739,903.
Neef, Rutger: *See—*
Hederich, Volker; Gehrke, Gunter; Neef, Rutger; and Wegner, Peter, 3,740,186.
Neufang, Karl; Kuth, Robert; Neef, Rutger; and Breidbach, Gunter, 3,740,185.
Negra, John S.: *See—*
Tourtellotte, John F.; Negra, John S.; Warshaw, Abe; and Villiers-Fisher, John F., 3,739,583.
Negra, John S.; and Warshaw, Abe, to Chemical Construction Corporation. Catalyst for treating combustion exhaust gas. 3,740,349, Cl. 252-466.00j.
Neil, Peter C., to Standard Oil Company. Plug assembly for thermoforming. 3,740,178, Cl. 425-182.000.
Neimark, Lawrence A., to United States of America, Atomic Energy Commission. Fuel pin for a liquid-metal-cooled fast-breeder nuclear reactor. 3,740,314, Cl. 176-68.000.
Nelco Corporation: *See—*
Schindler, Edgar C.; and McEachron, John C., 3,740,451.
Nelson, George E. Up and over door mount. 3,739,526, Cl. 49-197.000.
Nelson, John Edward; and Guerguerian, Laurent, to Dominion Engineering Works, Limited. Grinding mills. 3,739,993, Cl. 241-70.000.
Nelson, John H.; and Witt, Paul R., to Dairyland Food Laboratories, Inc. Chillproofing beer with enzyme obtained from Mucor pulsillus Lindt. 3,740,233, Cl. 99-48.000.
Nelson, Roger P.: *See—*
Hess, Hans-Jurgen E.; and Nelson, Roger P., 3,740,417.
Nelson, Theodore M.: *See—*
Moore, Robert A.; and Nelson, Theodore M., 3,740,675.
Nemit, Jeffrey T., to International Telephone and Telegraph Corporation. Wideband dual-slot waveguide array. 3,740,751, Cl. 343-771.000.
Neufang, Karl; Kuth, Robert; Neef, Rutger; and Breidbach, Gunter, to Bayer Aktiengesellschaft. Exhaust process for the dyeing of synthetic fibre materials. 3,740,185, Cl. 8-39.000.
Neuhard, Barry L.: *See—*
Zychal, Edward; and Neuhard, Barry L., 3,739,674.
Newallis, Peter E.; Poje, Albert J.; and Epstein, Peter F., to Chemagro Corporation. Certain heterocyclic isothiocyanates used as fungicides. 3,740,435, Cl. 424-285.000.
Newman, Charles J., to Grote Manufacturing Company, The. Warning light with spring socket for a bulb. 3,740,544, Cl. 240-8.220.
Newman, James A.: *See—*
Alderson, Thomas; and Newman, James A., 3,740,303.
Newstead, Charles, to Girling Limited. Lining wear indicators. 3,740,566, Cl. 307-10.00r.
Nezat, Jerry W. Fuel and air mixing device. 3,740,203, Cl. 48-180.00m.
Nguyen, Dat Nhiep: *See—*
Jarrige, Georges Roger; and Nguyen, Dat Nhiep, 3,740,686.
Nickerson, Charles, to American Telephone and Telegraph Company. Central office private branch exchange telephone system. 3,740,485, Cl. 179-18.0ad.
Nickl, Josef: *See—*
Heider, Joachim; Nickl, Josef; Eberlein, Wolfgang; Kobinger, Walter; and Dahms, Gerhard, 3,740,390.
Nicolas, Gerard: *See—*
Antier, Guy; and Nicolas, Gerard, 3,739,467.
Nicolle, Frederick Villeneuve. Prosthetic joint having a tissue ingrowth preventive capsule. 3,739,403, Cl. 3-1.000.
Niebiseh, Gunter, to Hansel, Otto, G.m.b.H. Apparatus for continuous production of toffee-soft caramel and similar masses of the sweet industry. 3,739,711, Cl. 99-348.000.
Niedecker, Herbert. Sausage filling process and apparatus. 3,739,427, Cl. 17-49.000.
Niederjohn, Russell K.; and Wilk, Stanley H., to General Electric Company. Transport vehicle for large enclosed electric induction apparatus. 3,740,684, Cl. 336-65.000.
Niemann, Gert: *See—*
Blaich, Emil; and Niemann, Gert, 3,740,272.
Niemiec, Stanley Joseph: *See—*
Heuner, Robert Charles; Niemiec, Stanley Joseph; and Morgan, David Keith, 3,740,717.
Niles, Albert B., to Caterpillar Tractor Company. Fuel meter mounting for an engine. 3,739,761, Cl. 123-136.000.
Niles Parts Co., Ltd.: *See—*
Ikeda, Sadatoshi, 3,740,568.
Nilsson, Sven Melker, to Ingenjorsfirman Nilcon AB. Machine for the manufacture of elongate concrete building blocks. 3,740,176, Cl. 425-64.000.
Nimerick, Kenneth H., to Dow Chemical Company, The. Sealing composition and method. 3,740,360, Cl. 260-17.4st.
Nippon Kogaku K.K.: *See—*
Itzuka, Kiyoshi, 3,740,152.
Nippon Kokan Kabushiki Kaisha: *See—*
Miyata, Akira; Okubo, Hideyo; Tomita, Chikayoshi; and Suzuki, Akio, 3,740,323.
Nippon Safety Glass Co., Ltd.: *See—*
Fujiwara, Yasubaru, 3,740,281.
Nippondenso Co., Ltd.: *See—*
Iwaki, Katsutaro; Mori, Kazumasa; Ishihama, Masaru; and Kobayashi, Yukio, 3,740,637.
Nirdorff-Krein Mfg., Co.: *See—*
Sander, Benjamin; Ruefl, Robert C.; and Woltzen, Herschel E., 3,739,432.
Nishikawa, Nobuaki: *See—*
Okumura, Munehiro; Umemura, Eiji; Nishikawa, Tatsuaki; Nishikawa, Nobuaki; and Shimoyama, Hiroyuki, 3,740,304.
Nishikawa, Tatsuaki: *See—*
Okumura, Munehiro; Umemura, Eiji; Nishikawa, Tatsuaki; Nishikawa, Nobuaki; and Shimoyama, Hiroyuki, 3,740,304.
Nissan Motor Company, Limited: *See—*
Shono, Kinji, 3,739,896.
Nissen, Nico, to U.S. Philips Corporation. Circuit arrangement for digital sampled-data three-point control system. 3,740,578, Cl. 307-232.000.
Nitto Electric Industrial Co., Ltd.: *See—*
Okutani, Seiichi, 3,739,917.
Nitz, Rolf-Eberhard: *See—*
Beyerle, Rudi; Nitz, Rolf-Eberhard; Resag, Klaus; Schraven, Eckhard; and Stachel, Adolf, 3,740,398.
Nivon, Edmond. Grain drying apparatus. 3,739,493, Cl. 34-167.000.
Nolli, Giovanni, to Fiat Societe per Azioni. Positive synchromesh gears. 3,739,890, Cl. 192-53.00e.
Nolte, Helmuth: *See—*
Sakreis, Robert; and Nolte, Helmuth, 3,740,278.
Nordgren, Robert, to General Mills Chemicals, Inc. Fast hydrating alkali metal carboxyalkyl polygalactomannans and process for preparing same. 3,740,389, Cl. 260-209.00r.
Nordischer Maschinenbau Rud. Baader: *See—*
Bartles, Alfred; Drews, Jurgen; and Pinkerneil, Gunther, 3,739,428.
Nordisk Ventilator Co. Aktieselskab: *See—*
Andersen, Christian Karmark, 3,739,980.
Noren, Oscar B.: *See—*
Garland, Carl C.; Kwarsick, Edmund J.; and Noren, Oscar B., 3,739,909.
Norman Industries, Inc.: *See—*
Brody, Norman M., 3,740,542.
Norris, Allan S.: *See—*
Landrus, James D.; Norris, Allr . S.; and Edmunds, John O., 3,739,807.
Norris, Peter Edward: *See—*
Pankove, Jacques Isaac; and Norris, Peter Edward, 3,740,622.
North American Aviation, Inc.: *See—*
Moulton, James A., 3,740,750.
North American Rockwell Corporation: *See—*
Davies, Thomas J., Jr., 3,740,660.
Deutsch, Ralph, 3,740,450.
Holmes, Alton B., 3,740,105.
Northrop Carolina Inc.: *See—*
Godfrey, John N., 3,739,574.
Northrop Corporation: *See—*
Schwend, Francis R., 3,739,679.
Norton Company: *See—*
Eckert, John S., 3,739,551.
Nosal, Vsevold Vladimisovich: *See—*
Tselikov, Alexandr Ivanovich; Nosal, Vsevold Vladimisovich; and Verderevsky, Vadim Anatolievich, 3,739,624.
Novak, Ernest Richard, to Du Pont de Nemours, E. I., and Company. Cross-linkable chlorinated aromatic polymers. 3,740,375, Cl. 260-61.000.

Novak, Greg A. Pneumatic pressure indicator. 3,739,637, Cl. 73-146.300.

Novotny, Raymond J., to Abex Corporation. Concrete ties. 3,739,981, Cl. 238-92.000.

NRM Corporation: *See—*
Jones, Thomas C.; and Cantarutti, Armindo, 3,740,293.

Nuclear Fuel Services Inc.: *See—*
Gammill, Adrian M.; Runion, Thomas C.; and Housholder, William R., 3,740,199.

Nuitall, Fleet E.; Laing, Ralph R.; Marshall, James E.; Rhodes, Tony; Sargeant, John E.; and Workman, Larry D., to Mattel, Inc. Phonograph toy having swingable motor and record-supporting output shaft. 3,740,056, Cl. 274-9.00b.

Nupla Corporation: *See—*
Davis, Elbert, 3,739,457.

Nutku, Ata. Rotating-piston toroidal machine with rotating-disc abutment. 3,739,754, Cl. 123-8.270.

N.V. Bekaert S.A.: *See—*
Bruggeman, Frans, 3,740,023.

Oak Electro/Netics Corporation: *See—*
Ruppert, Albert L., 3,739,512.

O'Brien, Paul J.; and Messias, Harold F., to United States of America, Navy. Far field signal simulation utilizing cylindrical arrays. 3,740,707, Cl. 340-9.000.

Ochiai, Shigeru: *See—*
Mohri, Etsuzo; Saito, Hiroshi; Hayakawa, Toshio; and Ochiai, Shigeru, 3,739,650.

O'Connor, Bernard J.; and De Carlo, Frank S., to Bendix Corporation, The. Failure detection and control means for improved drift performance of a gimballed platform system. 3,739,646, Cl. 74-5.340.

O'Connor, Thomas J. Electro-erosion machining electrode. 3,740,519, Cl. 219-69.00e.

Odney, Erling. Fishing device. 3,739,514, Cl. 43-17.000.

Odom, Richie G.; and Fowler, Carson W. Irrigation equipment for tractor. 3,739,985, Cl. 239-172.000.

Ogle, Robert Walter, to IMS Limited, mesne. Saf-t-jet. 3,739,780, Cl. 128-220.000.

Ohio Brass Company, The: *See—*
Herbert, Donald L., 3,740,498.

Ohlschlager, Hans; and Himmelmann, Wolfgang, to Agfa-Gevaert Aktiengesellschaft. Light sensitive photographic material. 3,740,228, Cl. 96-84.00a.

Ohlson, Carl-Eric; and Ohlson, Eric Oscar, to Swift & Company. Control device for selectively removing and returning adjacent items contained in a magazine. 3,739,510, Cl. 40-78.050.

Ohlson, Eric Oscar: *See—*
Ohlson, Carl-Eric; and Ohlson, Eric Oscar, 3,739,510.

Ohtani, Yoshio; and Kakijima, Todomu, to Diesel Kiki Kobushiki Kaisha. Electronic governor having an overspeed preventing circuit for internal combustion engines. 3,739,757, Cl. 123-102.000.

Ohwada, Atsushi; and Arnold, John A., to Texas Instruments, Incorporated. One transistor dynamic memory cell. 3,740,731, Cl. 340-173.0ca.

Oida, Etsuo: *See—*
Maruyama, Shoji; Oida, Etsuo; Hamada, Takao; Asami, Tomiaki; and Iwata, Susumu, 3,740,229.

Okada, Hisao, to Sony Corporation. Automatic tint control circuit. 3,740,459, Cl. 178-5.4he.

Okami, Toshiro: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Hamada, Masa; Maeda, Kenji; and Okami, Toshiro, 3,740,319.

Okano, Shigeru: *See—*
Akiyama, Hisao; Okano, Shigeru; Suzuki, Hiroyuki; Maezima, Kaoru; Komatsu, Toshiaki; and Katsura, Toyozo, 3,740,411.

Okubo, Hideyo: *See—*
Miyata, Akira; Okubo, Hideyo; Tomita, Chikayoshi; and Suzuki, Akio, 3,740,323.

Okumura, Munehiro; Umemura, Eiji; Nishikawa, Tatsuaki; Nishikawa, Nobuaki; and Shimoyama, Hiroyuki, to Mitsubishi Rayon Company Limited. Synthetic threac composed of bundled split tape. 3,740,304, Cl. 161-175.000.

Okutani, Seiichi, to Nitto Electric Industrial Co., Ltd. Tape rolls holding and display box. 3,739,917, Cl. 211-40.000.

Oleszko, Thaddeus. High temperature rabble design. 3,740,184, Cl. 432-235.000.

Olinkraft, Inc.: *See—*
Harrelson, Glen R., 3,739,940.

Oliveri, Paul B., to Industrial Specialties Corporation. Grease cup. 3,739,877, Cl. 184-45.00r.

Olsen, Willi; and Beer, Heinz. Blow-piston disconnect apparatus for high voltage. 3,740,508, Cl. 200-14.80a.

Olson, Melvin M., to Minnesota Mining and Manufacturing Company. Composition of matter. 3,740,414, Cl. 260-32.60a.

Olszowka, Robert F.; Thomas, Howard M.; and Gong, Ray F., to Wurlitzer Company, The. Organ drop-in key assembly. 3,740,448, Cl. 84-1.010.

Olumpus Optical Co., Ltd.: *See—*
Itoh, Mitsuto, 3,739,784.

Olympic Fastening Systems, Inc.: *See—*
Siebol, George; and Kolec, Robert F., 3,739,682.

Olympus Optical Co., Ltd.: *See—*
Mori, Tushiyoki, 3,739,770.

Ondetti, Miguel Angel. 11-Terminal derivatives of secretin. 3,740,385, Cl. 260-112.500.

O'Neil, Robert A., to Seeburg Corporation, The. Title display for a coin operated phonograph. 3,739,509, Cl. 40-64.000.

O'Neill, Joseph Thomas, to Du Pont of Canada Limited. Apparatus for packaging dow into cartons. 3,739,546, Cl. 53-116.000.

Ong, Kian Kie, to U.S. Philips Corporation. Automatic control circuit for television sound carrier. 3,740,460, Cl. 178-5.80a.

Onishi, Kenichi: *See—*
Tomohiro, Kazutaka; and Onishi, Kenichi, 3,740,503.

Ordibel S.P.R.L.: *See—*
Jacobs, Josef Egied, 3,740,050.

Orwoll, Edward Francis: *See—*
Lynch, Charles Andrew, Jr.; and Orwoll, Edward Francis, 3,740,264.

Oshiro, Nobuhiko: *See—*
Takahashi, Yasuyoshi; Oshiro, Nobuhiko; Msysui, Tsutomu; Tomokubo, Yoshiaki; and Asaka, Norishisa, 3,740,536.

Osiecki, Jeanne H.: *See—*
Ullman, Edwin F.; Call, Ludwig; Leute, Richard K.; and Osiecki, Jeanne H., 3,740,412.

Osterreith, Michel: *See—*
Gabellieri, Rodolfo; and Osterreith, Michel, 3,740,383.

Ostrovskaya, Irina Yakovlevna: *See—*
Dolgoplosk, Boris Alexandrovich; Tinyakova, Elena Ivanovna; Beilin, Solomon Isaakovich; Makovetsky, Kirill Lvovich; Chernenko, Galina Moiseevna; Ostrovskaya, Irina Yakovlevna; Krol, Vladimir Alexandrovich; and Khrennikova, Elena Konstantinovna, 3,740,382.

Ostrwosky, Efrem M.; and Crowle, William G., to Federal Tool & Plastics, a division of VCA Corporation. Actuator means for use with aerosol dispensers. 3,739,941, Cl. 222-153.000.

Oswald, Leo Alex, to Owens-Corning Fiberglas Corporation. Apparatus for packaging linear material. 3,739,995, Cl. 242-18.00g.

Otani, Akemasa. Method of manufacture of a ribbed pile. 3,739,459, Cl. 29-477.300.

Otis Elevator Company: *See—*
Cilderman, Janis; and Clarkson, Charles Heyd, 3,739,881.

Otis Engineering Corporation: *See—*
Sizer, Phillip S., 3,739,850.

O'Toole, Jerome M.; and McManus, John B., Jr., to Hunt, Rodney, Company. Wet processing apparatus. 3,739,604, Cl. 68-3.0ss.

Ott, Hans, to Sandoz-Wander, Inc. 2-Isopropylaminobenzophenones in treating inflammation. 3,740,442, Cl. 424-330.000.

Otto, George W., Jr., to Litton Medical Products, Inc. Spot film device. 3,740,556, Cl. 250-66.000.

Outboard Marine Corporation: *See—*
Berry, Robert J.; and Dubois, Chester G., 3,739,763.
Cavil, David I., 3,739,738.

Overall, Wilson W.: *See—*
Langenfeld, Frank H.; and Overall, Wilson W., 3,740,336.

Overway, Roy E., to Sealed Power Corporation. Machine for forming piston ring spacer-expander from strip stock. 3,739,622, Cl. 72-316.000.

Owens-Corning Fiberglas Corporation: *See—*
Oswald, Leo Alex, 3,739,995.

Owens-Illinois, Inc.: *See—*
Scott, John E., 3,739,532.
Turpin, James N., 3,739,745.
Uhlig, Albert R., 3,740,181.
Weaver, Edward A., 3,740,335.

Oxy-Dry Sprayer Corporation: *See—*
Buhler, Warren G.; and Maltesky, Albert, 3,740,248.

Oy Cyklop AB: *See—*
Back, Karl Johan, 3,740,087.

Oziro, Hazime: *See—*
Matsushima, Hiroshi; Arimura, Ichiro; Goto, Hiroshi; Nakao, Yoshikazu; and Oziro, Hazime, 3,740,659.

Pace, John W., to Tektronix, Inc. Programmable function generator. 3,740,539, Cl. 235-197.000.

Pacini, Elmo J.; Johnson, Alford H.; and Turner, Robert B., Jr., to CSI Liquidating Corporation. Linear position converter. 3,739,649, Cl. 74-89.220.

Package Machinery Company: *See—*
Sidur, Edmund, 3,740,180.

Pagano, Joseph F.; and Valenta, Joseph R., to Smith Kline & French Laboratories. Cell propagator. 3,740,321, Cl. 195-127.000.

Page, Robert J. Collapsible cover assembly for truck boxes and the like. 3,740,092, Cl. 296-105.000.

Page, Wilbur Mills; and Coupland, Ralph, to Clayton Dewandre Company, Limited. Control valves for spring brake units. 3,739,802, Cl. 137-116.300.

Pagels, Rolf W., to Crown Zellerbach Corporation. Contoured bed sheet. 3,739,408, Cl. 5-334.00c.

Pankove, Jacques Isaac; and Norris, Peter Edward, to RCA Corporation. Electroluminescent semiconductor device for generating ultra violet radiation. 3,740,622, Cl. 317-235.00r.

Papen, Eduard L. J., to National Forge Company. High pressure generating device. 3,740,169, Cl. 417-397.000.

Paper Converting Machine Company, Inc.: *See—*
Fischer, David L., 3,740,049.

Paper Machinery Corporation: *See—*
Bodendoerfer, Raymond E., 3,739,968.

Paramount Packaging Corporation: *See—*
Davis, Francis A., Jr., 3,739,694.

Pares, Francois: *See—*

Breant, Pierre Louis Vincent; David, Guy Albert Jules; Pares, Francois; and Grima, Jean-Claude, 3,740,478.

Park-Ohio Industries, Inc., mesne: *See—*
Kec, William J., 3,740,516.

Parke, Davis & Company: *See—*
Garland, Carl C.; Kwarsick, Edmund J.; and Noren, Oscar B., 3,739,909.

Parker, David E., to United States of America, Navy. Scroll transducer. 3,740,674, Cl. 335-215.000.

Parker Industries, Inc.: *See—*
Parker, Shirley L.; and Rohrer, John D., 3,740,097.

Parker, John C.: *See—*
Bellinger, Lawrence S.; and Parker, John C., 3,740,158.

Parker, Shirley L.; and Rohrer, John D., to Parker Industries, Inc. Vehicle dump bed. 3,740,097, Cl. 298-1.00a.

Patch, William D. Pool-less auger-separator for materials of differing specific gravities. 3,739,911, Cl. 209-460.000.

Patchen, Paul J.; and Berti, Jerome L., to Allis-Chalmers Corporation. Connecting rod lubrication oil hole. 3,739,657, Cl. 74-587.000.

Patent-Truehand-Gesellschaft fur Elektrische Gluhlampen m.b.H.: *See—*
Kaufman, Peter; and Liepert, Reinhold, 3,739,441.

Pateuk, Constantine J.; and Shneider, Harold M., to Honeywell Information Systems Inc. Internal actuator for impacting a serial printer print head. 3,739,897, Cl. 197-55.000.

Patin, Pierre. Process and equipment for regulating the output of a set of fuel cells. 3,740,269, Cl. 136-86.00e.

Patrick, Frank D.; and Najvar, Daniel J., to Dow Chemical Company, The. Low density low shrink thermoset resin foams. 3,740,353, Cl. 260-2.50n.

Pattullo, George R.: *See—*
Reedy, Donald G.; and Pattullo, George R., 3,739,458.

Patzer, Norman E. Remote control for automobile window. 3,740,093, Cl. 296-146.000.

Payne, Peter Charles John: *See—*
Kilgour, John; Payne, Peter Charles John; Reid, Stewart; and Everett, Erice George, 3,739,907.

Payst, Michael W., to International Business Machines Corporation. Roller band reciprocating drive mechanism. 3,739,648, Cl. 74-39.200.

Paz, Nicolas S. Non-spill cup. 3,739,938, Cl. 220-90.400.

Peacock, Carl R., to Phillips Petroleum Company. Bottom member inserting apparatus for container-forming machine. 3,739,695, Cl. 93-39.10r.

Peanut Research & Testing Laboratories, Inc.: *See—*
Baxley, James R., 3,740,236.

Pearson, Alma: *See—*
Pearson, Reinhold A., 3,739,696.

Pearson, Reinhold A.; deceased (by Pearson, Alma; executrix). Carton delivery and expanding apparatus. 3,739,696, Cl. 93-53.0sd.

Pedersen, Thomas Josef, to Bell Telephone Laboratories, Incorporated. Time division switching system with bilateral time slot interchangers. 3,740,483, Cl. 179-15.0aq.

Peebles, Gerald L.: *See—*
Von Alten, Theodor; Peebles, Gerald L.; and Battige, James G., 3,740,289.

Pellegrino, James A.: *See—*
Kaelin, George R.; and Pellegrino, James A., 3,740,570.

Pelton, Charles R.; and Mitchell, Kim L., to Pelton Company, Inc. Method and apparatus for remotely controlling a seismic vibrator and recording system. 3,739,870, Cl. 181-.5fs.

Pelton Company, Inc.: *See—*
Pelton, Charles R.; and Mitchell, Kim L., 3,739,870.

Pelzel, Erich, to Stolberger Zink AG fur Bergbau und Huttenbetrieb. Zinc alloy. 3,740,214, Cl. 75-178.00r.

Pere, Gerard, to Creusot-Loire. Coupling for joining two shafts liable to non-alignment and to displacement along their axes, about a mean position. 3,739,600, Cl. 64-19.000.

Perego, Giuseppe. Device for quick fixing or dismounting respectively of a wheel from the supporting frame of a vehicle, particularly a pram or push-chair for children. 3,740,100, Cl. 301-121.000.

Peres, Anthony R., to Peres Electronic Machinery, Inc. Apparatus for automatically opening and emptying containers into a blending tank. 3,739,471, Cl. 30-4.00r.

Peres, Anthony R., to Peres Electronic Machinery Inc. Barrel opener. 3,739,472, Cl. 30-6.400.

Peres Electronic Machinery, Inc.: *See—*
Peres, Anthony R., 3,739,471.
Peres, Anthony R., 3,739,472.

Perlman, Jay M.: *See—*
Drwal, Ted H.; and Perlman, Michael J. (said Drwal, Ted H., assor. to said), 3,740,231.

Perlman, Michael J.: *See—*
Drwal, Ted H.; and Perlman, Michael J., 3,740,231.

Perlman, Stuart Stanley: *See—*
McLusker, Joseph Henry; and Perlman, Stuart Stanley, 3,740,582.

Perri, Thomas J.: *See—*
Kamp, Craig D., 3,740,033.

Perrin, Michael J.: *See—*
Smagala-Romanoff, Edward A., 3,740,159.

Perrot, Alexander; and Schucker, Emil. Method and device for the sprinkling of a cultivated field. 3,739,982, Cl. 239-1.000.

Petel, Harish A., to Kimberly-Clark Corporation. Tampon inserter arrangement. 3,739,781, Cl. 128-263.000.

Peterman, Charles P.; Johnson, Glenn D.; and Petersen, William H., to Shell Oil Company. Apparatus for carrying out underwater wellhead operations. 3,739,844, Cl. 166-.500.

Peters, Philip H., Jr.; and Matrone, John L., to Environment/One Corporation. Consumer oriented combined counter and cooking unit using induction heating. 3,740,513, Cl. 219-10.490.

Peters, William H. Humidifier. 3,739,767, Cl. 126-113.000.

Petersen, William H.: *See—*
Peterman, Charles P.; Johnson, Glenn D.; and Petersen, William H., 3,739,844.

Petree, Donald K.: *See—*
Small, William M.; and Petree, Donald K., 3,739,841.

Petrol Injection Limited: *See—*
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Peyrolle Hydraulics Limited: *See—*
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Pfaffendorf, James L.; and Johnson, Marlyn D., to Fidelity File Box, Inc. Fiberboard file cabinet and drawer glide structure. 3,740,109, Cl. 312-261.000.

Pfaffle, Ernst, to Sickinger, Hans, Company. Paper punching machine. 3,739,672, Cl. 83-256.000.

Pfeiffer, Hans, to Kieserling, Th., & Albrecht. Metal drawing machine. 3,739,621, Cl. 72-287.000.

Pfiffner, Harold J., to Hughes Aricraft Company. Precision switching circuit for analog signals. 3,740,581, Cl. 307-251.000.

Pfizer, Inc.: *See—*
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Hess, Hans-Jurgen E.; and Nelson, Roger P., 3,740,417.

Pfleger, Frederick W., to Medical Electroscience & Pharmaceuticals, Inc. Hypodermic syringe and needle construction. 3,739,779, Cl. 128-218.0da.

PGC Scientifics Corporation: *See—*
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Phelan, Charles Stephens: *See—*
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Philco-Ford Corporation: *See—*
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Philip, Morris. Apparatus and method for feeding strands, and elements thereof. 3,739,603, Cl. 66-132.000.

Phillips Petroleum Company: *See—*
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Kodis, Rudolfs, 3,739,746.
Peacock, Carl R., 3,739,695.
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Phillips, William E., to Texaco, Inc. Seismic pneumatic energy source with bubble eliminator and signal oscillation attenuator. 3,740,708, Cl. 340-12.000.

Piccone, Dante E.: *See—*
McIntyre, James E.; Piccone, Dante E.; and Somos, Istvan, 3,740,584.

Piffath, Rodney S.; and Cole, John J., to Butane Match A.G. Lighter with delayed flame shutoff. 3,740,183, Cl. 431-276.000.

Pilkington Brothers Limited: *See—*
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Pinkerneil, Gunther: *See—*
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Pintell, Robert H., to Intron International Inc. Electronic fuze. 3,739,726, Cl. 102-70.20r.

Pittman, Paul F.: *See—*
Ravas, Richard J.; Pittman, Paul F.; and Saletta, Gary F., 3,740,640.

Plaga, Charles I., III, to Tenneco, Inc. Muffler with tuning tube. 3,739,874, Cl. 181-48.000.

Plake, William Edgar, to Brown & Root, Inc. Conical stabbing guide and clamp system for riser pipe installation. 3,739,592, Cl. 61-72.100.

Plank, Karl-Ludwig; and Schwarzer, Michael, to Telefonbau und Normalzeit G.m.b.H. Time division multiplex telephone system with parallel transmission. 3,740,482, Cl. 179-15.00a.

Plath, Ernst-Dieter, to Mayer & Cie. Jacquard-pattern arrangement for circular knitting machines. 3,739,601, Cl. 66-50.00b.

Platt, Richard Bibby; and McCue, Bernard Beverly, to RCA Corporation. Method for separating chemically-oxidizable phosphor particles from mixtures with essentially nonoxidizable phosphor particles. 3,740,342, Cl. 252-301.650.

Platt, Thomas R.: *See—*
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Pneumatic Scale Corporation: *See—*
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Scully, John W., 3,740,030.
Scully, John W., 3,740,031.

Pober, Zalmon. Method of inhibiting appetite for food. 3,740,440, Cl. 424-320.000.

Pogonowski, Ivo C. Clamping device for closing an uncontrollably flowing submerged well. 3,740,017, Cl. 251-5.000.

Pohndorf, Henry L.: *See—*
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Poje, Albert J.: *See—*
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Posnick, Irving H., to Aqualand Pool Co., Inc. Below ground swimming pool. 3,739,339, Cl. 52-169.000.
Postel, Edward. Jewelry articles for interchangeable ornaments, and means for disengaging said ornament. 3,739,598, Cl. 63-29.00r.
Potter Instruments Company, Inc.: *See—*
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Potter, John T., to Potter Instruments Company, Inc. Information printing and storage system. 3,739,719, Cl. 101-93.00c.
Poulin, Clyde J.; and Bryla, Theodore N., to United States of America, Navy. Deflagrative circuit board material. 3,740,277, Cl. 149-15.000.
Powell, Leslie Vernon; and Edwards, Reginald Harold, to Dunlop Holding Limited. Tire and wheel assemblies. 3,739,829, Cl. 152-330.000.
Powell, Roger Andrew. Conversion apparatus. 3,739,978, Cl. 235-61.0pk.
Powley, George D.: *See—*
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PPG Industries, Inc.: *See—*
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Prentice, E. V., Co.: *See—*
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Presser, Adolph, to RCA Corporation. Semiconductor carrier for microwave applications. 3,740,672, Cl. 333-84.00m.
Pressman, Jerome. Method and apparatus for mass separation employing photo enhanced surface ionization. 3,740,552, Cl. 250-41.9se.
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Price, Billie P.; and Price, Lane B. Method of preparing barbecued turkey. 3,740,234, Cl. 99-107.000.
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Prola, Victor J. Game or educational device. 3,740,039, Cl. 273-161.000.
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Puffr, Rudolf: *See—*
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Pullen, Charles A., to Hughes Aircraft Company. Input/output controller. 3,740,728, Cl. 340-172.500.
Pulp and Paper Research Institute of Canada: *See—*
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Purves, William F.; Lee, William F.; Davies, Peter H.; and Jeffery, William J., to General Foods Limited. Agglomeration of instant coffee. 3,740,232, Cl. 99-71.000.
Pusey, Walter C., III.: *See—*
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Puster, Louis M., to Robertshaw Controls Company. Pneumatic positioning apparatus and parts therefor or the like. 3,739,693, Cl. 92-13.000.
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Putterlik, Jan, to Ceskoslovenska akademie ved. Method and an arrangement for drying of dispersions by atomizing. 3,739,481, Cl. 34-8.000.
Putzier, Charles W.: *See—*
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Radecki, Tony: *See—*
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Radloff, Harry L.: *See—*
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Rafferty, Richard L.: *See—*
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Rajamani, Puthucode N.; Stern, Howard S.; Murty, Dasika R. K.; and Haney, Thomas A., to Squibb, E. R., & Sons, Inc. Radioactive scanning preparation. 3,740,418, Cl. 424-1.000.
Ranco-Incorporated: *See—*
Caldwell, Roland B., 3,739,797.
Randall, Louis E. Three-point hitch log skidding attachment. 3,739,928, Cl. 214-85.500.
Rapson, William H.; and Reeve, Douglas W., to Electric Reduction Company of Canada, Limited. Recovery of sodium chloride from white pulping liquor. 3,740,307, Cl. 162-17.000.
Rapson, William H.; and Reeve, Douglas W., to Electric Reduction Company of Canada, Limited. Recovery of sodium chloride from spent pulping liquors. 3,740,308, Cl. 162-17.000.
Rasmussen, Oystein E. Method for the prevention of fouling of ships. 3,740,192, Cl. 21-58.000.
Rasmussen, Peter D.: *See—*
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Ratcliff, John W. Telescopic end section for telescopic travel trailer. 3,740,088, Cl. 296-23.00c.
Rauh, Jack K.: *See—*
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Rausch, Paul Gilger; and Todish, Walter Donald, to Foseco Trading A.G. Assembly method for the lining of hot tops and the like in foundry practice. 3,739,833, Cl. 164-6.000.
Rausch, Richard E., to Universal Oil Products Company. Hydrocarbon conversion process and catalyst therefor. 3,740,328, Cl. 208-139.000.
Ravas, Richard J.; Pittman, Paul F.; and Saletta, Gary F., to Westinghouse Electric Corporation. Radar power supply. 3,740,640, Cl. 323-17.000.
Ravitts, Richard B., to Richards of Rockford, Inc. Axial flow liquid aerator. 3,739,986, Cl. 239-221.000.
Ray, Charles A. Aerator type attachment structure. 3,739,856, Cl. 172-21.000.
Raytheon Company: *See—*
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Reed, William A.; and Cole, Frank J., to Republic Steel Corporation. Apparatus for vaporizing molten metal. 3,740,043, Cl. 266-30.00r.
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Rejeski, William E., to Wiremold Company, The. Flexible collapsible tubing. 3,739,815, Cl. 138-122.000.
Reliance Electric Company: *See—*
Robaszkilwicz, Gerald D., 3,739,880.
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Renker GmbH: *See—*
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Repsher, Robert W., to Westinghouse Electric Corporation. Method of uniformly coating a tubular lamp envelope with phosphor. 3,740,251, Cl. 117-33.501.
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Reed, William A.; and Cole, Frank J., 3,740,043.
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Denton, Clyde T., 3,739,423.
Reuter, Fritz, to Eberspacher, J. Variable relaxation oscillator having time constant circuit dependent on power supply variations. 3,740,667, Cl. 331-111.000.
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Reyner, Emerson Marshall, II: *See—*
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Reynolds, John M. Combination well bailer and swab. 3,739,847, Cl. 166-107.000.
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Rhodes, Tony: *See—*
Nuitall, Fleet E.; Laing, Ralph R.; Marshall, James E.; Rhodes, Tony; Sargeant, John E.; and Workman, Larry D., 3,740,056.
Richards, George Gilman, Jr.; and Cherry, Alton Edgar, to AMP Incorporated. High voltage dual isolated output tracking power supply. 3,740,571, Cl. 307-55.000.
Richards of Rockford, Inc.: *See—*
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Ricoh Co., Ltd.: *See—*
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Miyagawa, Fumihiro, 3,739,697.
Rieth, Harold F. Reflex meter. 3,739,768, Cl. 128-2.000.
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Riley, Robert E.; and Taub, James M., to United States of America, Atomic Energy Commission. Composite insulators for use in hot hydrogen environments. 3,740,340, Cl. 252-301.10r.
Riley, Russell B., to Hewlett-Packard Company. Pulse modulated signal detector. 3,740,656, Cl. 329-104.000.
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Ebnother, Anton; and Rissi, Erwin, 3,740,407.
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Rivers, Alfred James, to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defense in Her Britannic Majesty's Government of the. Rocket assisted ejection seats. 3,740,005, Cl. 244-122.0ad.
Ro-Search, Incorporated: *See—*
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Roberts, Carroll R.; Glidden, Ramon L.; and Molly, Patrick C., to Avco Corporation. Shock testing machine. 3,739,625, Cl. 73-12.000.
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Robins, Charles I., to McCord Corporation. Adhesive in capsule coated gasket. 3,740,062, Cl. 277-235.00b.
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Rodriguez, Raul. Marine propeller. 3,740,165, Cl. 416-241.000.
Roeske, Eugene A., to Wire Sales Company. Synchronizing clutching arrangement for hydrostatic transmission. 3,739,578, Cl. 60-444.000.
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Romer, Kurt; Schmid, Josef; and Kraje, Adolf, to Junkers & Co., GmbH. Method of making an electromagnetic device. 3,739,465, Cl. 29-596.000.
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Roncke, Gerhard, to U.S. Philips Corporation. Switch arrangement including a thyristor. 3,740,610, Cl. 315-241.00p.

Ronen, Ram Shaul, to RCA Corporation. Method of making semiconductor device. 3,740,280, Cl. 156-11.000.

Rooney, Craig E. Typewriter with single spring to provide letter spacing and printing. 3,739,898, Cl. 197-55.000.

Roscher, Alfred M., to PPG Industries, Inc. Process and apparatus for dielectric heat drying elastomer coated glass fibers. 3,740,257, Cl. 117-93.1dh.

Rose, Harry J. Plant-holding receptacles. 3,739,524, Cl. 47-38.100.

Rosen, Harvey M.; and Lee, Hanju, to Grace, W. R., & Co. Acid stable molecular sieve products. 3,740,347, Cl. 252-455.00z.

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Ross, Sidney D.; and Finkelstein, Manuel, to Sprague Electric Company. Electrical capacitors with ester impregnants. 3,740,625, Cl. 317-259.000.

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Rossitto, Charles C., 1/2 to Sebastian, Liotta. Animal excreta pickup device. 3,740,086, Cl. 294-19.00r.

Rosvold, Warren C., to Signetics Corporation. Semiconductor structure with yieldable bonding pads having flexible links and method. 3,740,619, Cl. 317-4.00r.

Roszell, Wayne O.: *See—*
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Rotary Hoes Limited: *See—*
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Rothweiler, Richard C.: *See—*
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Rowenta-Werke Gesellschaft mit beschrankter Haftung: *See—*
Wohlfart, Kurt; and Marburger, Heinz, 3,740,528.

Rubin, Charles P., to Hughes Aircraft Company. Non-rotatably extendible mast. 3,739,538, Cl. 52-108.000.

Rudman, Regis M.: *See—*
Brevko, Robert; Viviano, Peter; Rudman, Regis M.; and Adams, Lawrence D., 3,739,547.

Rudolph, Hans. Low actuating pressure type valve structure. 3,739,801, Cl. 137-102.000.

Rueff, Robert C.: *See—*
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Ruel, Maurice; Janssens, Jean-Marie; and Brousseau, Real, to Universite de Sherbrooke. Semicontinuous dilatometer/calorimeter. 3,739,639, Cl. 73-190.00r.

Ruf, Eberhard, to Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen. Apparatus for conveying, mixing and homogenizing high viscosity materials. 3,740,025, Cl. 259-7.000.

Ruget, Gabriel, to Creusot-Loire. Electromagnetic powder couplings. 3,739,887, Cl. 192-21.500.

Ruhl, Rudolf, to Leitz, Ernst, G.m.b.H. Wide-angle lens. 3,740,120, Cl. 350-214.000.

Runion, Thomas C.: *See—*
Gammill, Adrian M.; Runion, Thomas C.; and Housholder, William R., 3,740,199.

Ruppert, Albert L., to Oak Electro/Netics Corporation. Reflective readout device. 3,739,512, Cl. 40-130.00k.

Rupprecht, Kurt: *See—*
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Rustad, Norman E.: *See—*
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Ruti Machinery Works, Ltd.: *See—*
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Rybak, Richard A., to Hansen Manufacturing Company, The. Plant support device. 3,739,525, Cl. 47-44.000.

Sadowski, Volker: *See—*
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Safeway Stores, Inc.: *See—*
Comstock, Alfred E.; and Wilcox, Burdsal Gardner, 3,739,668.

Sagarian, John: *See—*
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Sage, Ira H.: *See—*
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Saglio, Robert, to Commissariat a l'Energie Atomique. Ultrasonic testing of welds. 3,739,628, Cl. 73-67.700.

Saipem S.p.A.: *See—*
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Saito, Hiroshi: *See—*
Mohri, Etsuzo; Saito, Hiroshi; Hayakawa, Toshio; and Ochiai, Shigeru, 3,739,650.

Saito, Kimihiko: *See—*
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Sakano, Toyoshi: *See—*
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Sakreis, Robert; and Nolte, Helmuth, to WASAG Chemie GmbH. Halogenated polyethylene coated crystalline explosive mixed with second explosive. 3,740,278, Cl. 149-11.000.

Sakurai, Tooshi; Tada, Satoshi; and Kazama, Kazuo, to Sansui Electric Co., Ltd. Optical lenticular grid for display apparatus. 3,740,119, Cl. 350-167.000.

Saletta, Gary F.: *See—*
Ravas, Richard J.; Pittman, Paul F.; and Saletta, Gary F., 3,740,640.

Salgo, Rheinhold C., to General Electrodynamics Corporation. Storage tube with photoconductor on mesh side facing conductive coating. 3,740,602, Cl. 313-65.00a.

Salvucci, Antonio G.: *See—*
Princiotta, Raymond A.; and Salvucci, Antonio G., 3,739,734.

Sander, Benjamin; Rueff, Robert C.; and Woltzen, Herschel E., to Nirdorff-Krein Mfg., Co. Chain safety hook. 3,739,432, Cl. 24-201.0he.

Sanderson, Frank Thomas; and Zdanowski, Richard E., to Rohm & Haas Company. Pressure sensitive adhesive containing carboxylic acid groups and polyvalent metal. 3,740,366, Cl. 260-29.60m.

Sandlin, Billy J.; Duncan, William A.; and Murfree, James A., Jr., to United States of America, Army. Gas generator structure. 3,740,198, Cl. 23-281.000.

Sandoz Ltd.; a/k/a Sandoz AG: *See—*
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Ebnother, Anton; and Rissi, Erwin, 3,740,407.

Sandoz-Wander, Inc.: *See—*
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Sandvik Aktiegolag: *See—*
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Sangster, Frederik Leonard Johan, to U.S. Philips Corporation. Capacitive store shift register. 3,740,577, Cl. 307-221.00d.

Sansui Electric Co., Ltd.: *See—*
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Sargeant, John E.: *See—*
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Sarmiento, Louis, to International Stretch Products, Inc. Panty-type garment and process of making such garment. 3,739,398, Cl. 2-224.00r.

Sarrade-Loucheur, Jacques, to Blancs Mineraux de Paris. Treatment of granulated fertilisers. 3,740,346, Cl. 252-384.000.

Sato, Jiro: *See—*
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Komori, Shigehiro; Sato, Jiro; and Hattori, Hiroyoki, 3,740,133.

Sato, Jiro, to Canon Kabushiki Kaisha. Photocopying apparatus. 3,740,137, Cl. 355-66.000.

Saunders, Alexander M.: *See—*
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Sauter, Walter A.: *See—*
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Sautter, Helmuth Otto: *See—*
McAlonie, Robert Francis; Sautter, Helmuth Otto; and Trimble, David Carlaw, 3,740,490.

Savino, Henry C., to Westinghouse Electric Corporation. Multi-bank elevator system having motion and position indicator. 3,740,709, Cl. 340-21.000.

Sawyer, Harold T., 24% to Bechler, Vernon D. Industrial carpet and floor conditioner. 3,739,417, Cl. 15-92.000.

Saxl, Erwin J. Apparatus for measuring tension in web-type materials. 3,739,633, Cl. 73-144.000.

Scanlon, Joseph C.; Brauer, Alfred; Carvalho, Robert; and Ellis, Cecil B., to Singer Company, The, mesne. Voice communication system. 3,740,559, Cl. 250-199.000.

Scardron, Marvin D.: *See—*
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Schacht, Hans: *See—*
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Schaefer, Jacob W., to United States of America, Army. Interferometer type homing head for guided missiles. 3,740,002, Cl. 244-3.190.

Schaefer, Werner, to Hartmann & Braun Aktiengesellschaft. Twin beam infrared absorption analyzer. 3,740,555, Cl. 250-43.50r.

Schaevitz, Abraham R., to Super Tire Engineering Company. Tire undertread probe. 3,739,828, Cl. 152-209.00r.

Schaffel, Martin: *See—*
Aasen, Torulf F.; Mogil, Bernard; and Schaffel, Martin, 3,739,800.

Schag, Ronald H.; and Landis, David M., to Thomas & Betts Corporation. Apparatus for identifying individual wires of a multi-wire cable. 3,740,644, Cl. 324-66.000.

Schantz, Spencer C., to U.S. Controls Corporation. Push-to-start switch. 3,740,682, Cl. 335-186.000.

Scharnhorst, Peter, to United States of America, Navy. Electro-optical detector. 3,740,690, Cl. 338-18.000.

Schauls, James J., to Trane Company, The. Gas separation system. 3,739,593, Cl. 62-14.000.

Scheiter, Milton H., to General Motors Corporation. Transmission. 3,739,658, Cl. 94-730.000.

Scheitlin, George E.; and Little, Richard F., to Arvin Industries, Inc. Catalytic converter. 3,740,197, Cl. 23-288.00f.

Schell, Friedrich P. Feed device. 3,739,826, Cl. 144-323.000.

Schellhammer, Carl-Wolfgang: *See*—
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Scherer, John G.; and Taggart, Lewis W., to Kaiser Aluminum & Chemical Corporation. Method for forming a sacrificial anode. 3,739,456, Cl. 29-447.000.
Schering Corporation: *See*—
Herzog, Hershel L.; Weber, Lois; and Shapiro, Elliot L., 3,740,316.
Scheublein, William A.: *See*—
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Schindler, Edgar C.; and McEachron, John C., to Nelco Corporation. Molded electrical junction box. 3,740,451, Cl. 174-58.000.
Schinke, Heinz Joachim; and Lehmann, Werner, to Bauerle, Mathias, GmbH. Automatically presettable copy counter for automatic printing machines, copiers, and the like. 3,740,531, Cl. 235-61.70r.
Schinnerer, Roy L.; Silver, Alexander; Sladek, Leonard T.; and Barnett, Morris A., to Garrett Corporation, The. Fluid bearing inertial filter. 3,740,163, Cl. 415-111.000.
Schleicher GmbH & Co.: *See*—
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Schleicher, Helmut; and Haufe, Werner, to Schleicher GmbH & Co. Locking mechanism. 3,740,696, Cl. 339-75.00m.
Schleif, George H. Retractable fish hook apparatus. 3,739,517, Cl. 43-35.000.
Schlinger, Warren G.: *See*—
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Schmid, Josef: *See*—
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Schmidt, Charles J., to Abar Corporation. Fixture for heat treating furnaces. 3,739,921, Cl. 211-177.000.
Schmidt, Clinton R. Water level maintenance device for swimming pools. 3,739,405, Cl. 4-172.150.
Schmidt, Stanley J. Liquid sample collector. 3,739,820, Cl. 141-284.000.
Schmidt, Ulrich: *See*—
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Schmidt, Wilhelm. Multi-part injection moulding die means. 3,740,179, Cl. 425-192.000.
Schmitt, Edward Emil; and Polistina, Rocco Albert, to American Cyanamid Company. Polyglycolic acid prosthetic devices. 3,739,773, Cl. 128-92.0bc.
Schmolka, Irving R., to BASF Wyandotte Corporation. Polyoxyethylene-polyoxypropylene aqueous gels. 3,740,421, Cl. 424-65.000.
Schneidinger, Carl. Light switch timing device. 3,740,680, Cl. 335-59.000.
Schnell, Karl. Sausage machine. 3,739,426, Cl. 17-33.000.
Schoettle, Kenneth L., to Sperry Rand Corporation. Method of manufacturing an extended-tab memory frame. 3,739,466, Cl. 29-604.000.
Scholer, Mervyn Garnet, to Cafe-Bar International Pty., Ltd. Coin-freed vending machine. 3,739,946, Cl. 222-129.400.
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Schramayr, Ernst, to Ideal Equipment Co., Ltd. Automatic point trimming machine for use in shirt making apparatus and the like. 3,739,733, Cl. 112-121.120.
Schraven, Eckhard: *See*—
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Schroter, Carl; and Mulfinger, Eckhard, to Hermann, Heinrich. Hand dispenser and applicator for adhesive tickets. 3,740,299, Cl. 156-577.000.
Schroter, Richard C.; and Thomas, David C., to Kaiser Aluminum & Chemical Corporation. Resilient retaining wall. 3,739,588, Cl. 61-49.000.
Schubach, Theodor C., to Rohr Industries, Inc. Knockout window for vehicle. 3,739,527, Cl. 49-466.000.
Schubach, Theodor C., to Rohr Industries, Inc. Roof to side wall joint area structure for transportation type vehicles. 3,740,089, Cl. 296-28.00a.
Schubert, Karl P., to Acme-Cleveland Corporation. Spindle carrier locking and clamping mechanism in multiple spindle machine tool. 3,739,660, Cl. 74-815.000.
Schucker, Emil: *See*—
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Schuler, Helmut; and Thies, Uwe, to Gebr. Borchers AG, Firma. Inhibition of discoloration of paints containing driers. 3,740,364, Cl. 260-22.00a.
Schuler, Helmut; and Thies, Uwe, to Gebr. Brochers AG, Firma. Inhibition of discoloration of paints containing driers. 3,740,365, Cl. 260-22.00a.
Schultz, Jerald, to Eaton Corporation. Key plug assembly. 3,739,612, Cl. 70-380.000.
Schulze, James L., Sr., to General Electric Company. Apparatus for adding moisture to air. 3,739,597, Cl. 62-311.000.
Schustack, Edward H. Pipe coupling. 3,740,082, Cl. 285-342.000.
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Schweizerische Industrie-Gesellschaft: *See*
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Schwend, Francis R., to Northrop Corporation. Chamfering saw. 3,739,679, Cl. 83-789.-000.
Schwenk, Kurt; and Rupprecht, Kurt, to Volkswagenwerk Aktiengesellschaft. Shock absorbing device especially for vehicles. 3,739,882, Cl. 188-1.00c.
Schwerin, Gunther, to Bosch, Robert, G.m.b.H. Motor vehicle braking arrangement. 3,740,102, Cl. 303-13.000.
Schwiebert, Phillip D. Trailer winch. 3,740,073, Cl. 280-179.00a.
Scioloro, Joseph D. Trash can holder. 3,739,431, Cl. 24-81.00c.
SCM Corporation: *See*—
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Scott, Edwin M., Jr. Process of die casting of brass. 3,739,836, Cl. 164-72.000.
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Scroggins, E. J. Collapsible cue stick. 3,740,034, Cl. 273-68.000.
Scully, John W., to Pneumatic Scale Corporation. Apparatus for producing cartons. 3,740,030, Cl. 271-35.000.
Scully, John W., to Pneumatic Scale Corporation. Apparatus for producing cartons. 3,740,031, Cl. 271-35.000.
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Sebenda, Jan; and Puffr, Rudolf, to Polymer Corporation, The. Method for introducing metal cations into lactam polymers. 3,740,379, Cl. 260-78.001.
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Seki, Kazunori; and Kazama, Toshio, to Tamagawa Kikai Kinzoku Kabushiki Kaisha. Slurry pump of oil-diaphragm type. 3,740,166, Cl. 417-92.000.
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Senova, Zlata Petrovna: *See*—
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Seperic Morat (Canton de Fribourg): *See*—
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Servanty, Guy Emile Louis, to Societe d'Etudes et de Recherches Appliquees S.E.R.A.P. Arrangement of jacks for controlling flaps and its application to the control of a jet pipe. 3,739,987, Cl. 239-265.390.
Sescosem-Societe Europeene de Semiconducteurs et de Microelectronique: *See*—
Dunand, Andre; Jarry, Jacques; and Gloanec, Maurice, 3,740,494.
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Shapiro, Elliot L.: *See*—
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Sharbaugh, Joseph C. Automatic sphere grinder with automatic feeder. 3,739,531, Cl. 51-105.00r.
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Slaymaker, Wilbur L.; and Long, John H., to Sperry Rand Corporation. Transport lock link for a mower conditioner. 3,739,560, Cl. 56-228.000.
Sleder, Richard L., to Brunswick Corporation. Rotation sensing pulse control generator for triggered ignition systems and the like. 3,739,759, Cl. 123-148.00e.
Sloane, R & G, Manufacturing Company, Inc.: *See*—
Kelsey, David H.; Putzier, Charles W.; and McColgan, John M., 3,740,290.
Slocum, Gordon K.: *See*—
McIntosh, Harold A.; Slocum, Gordon K.; and Koskolos, Nick J., 3,740,688.
Smagala-Romanoff, Edward A., 12% to Coles, Charles F., 10% to Weld, Christopher M., 1% to Leighton, Sally C., 1% to Hornblower, Henry, 1% to Perrin, Michael J., 1% to Gikas, John, 1% to Tenn, Jones and 20% to Steward, Campbell. Point protectors for writingimplements. 3,740,159, Cl. 401-117.000.
Small, William M.; and Petree, Donald K., to Phillips Petroleum Company. Indirect heat transfer apparatus. 3,739,841, Cl. 165-146.000.
Smedley, Richard W. Lock for skis. 3,739,607, Cl. 70-18.000.
Smith, Dale R., to York Research & Development Corporation. Cigar press. 3,739,786, Cl. 131-86.000.
Smith, Donald A.: *See*—
Butler, Walter J.; Puckette, Charles M.; and Smith, Donald A., 3,740,591.
Smith, Edward Leslie: *See*—
Miarkowaki, Dzeslaw; and Smith, Edward Leslie, 3,739,721.
Smith Kline & French Laboratories: *See*—
Brenner, E. Martin; and Loev, Bernard, 3,740,409.
Pagano, Joseph F.; and Valenta, Joseph R., 3,740,321.
Smith, Leon; and Myburgh, Henry Hugo, to South African Pulp and Paper Industries Limited and L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude. Delignification and bleaching of cellulosic pulp containing protector wih oxygen in the presence of alkali. 3,740,310, Cl. 162-65.000.
Smith, Philip N. Apparatus to produce yarn. 3,739,566, Cl. 57-90.000.
Smith, Roger M.: *See*—
Klett, Gene R.; Kokaly, Joseph; Risk, Norman E.; and Smith, Roger M., 3,739,506.
Smith, Theodore M. Floating tool holder. 3,740,063, Cl. 279-16.000.
Smith, Vernon L. Device for removing heavy duty tires from wheel. 3,739,831, Cl. 157-1.028.
Smith, Willis D.: *See*—
Land, Cecil W.; and Smith, Willis D., 3,740,118.
Snell, Brian Kenneth: *See*—
Shephard, Margaret Claire; and Snell, Brian Kenneth, 3,740,431.
Snyder, Carl J., to Westinghouse Electric Corporation. Translating methods and apparatus. 3,740,724, Cl. 340-172.500.
Sociedad Anonima Alba, Fabrica de Pinturas, ESMALTES Y BARNIC & S: *See*—
Munoa, Pablo E.; and Simonin, Eduardo M., 3,740,356.
Societe Anonyme dite: Societe Nationale des Petroles d'Aquitaine: *See*—
Fauroux, Jean Philippe, 3,740,604.
Societe des Accumulateurs Fixes et de Traction, (Societe Anonyme): *See*—
Jammet, Jean-Firmin; and Brych, Alfred, 3,740,271.
Societe d'Etudes et de Recherches Appliquees S.E.R.A.P.: *See*—
Servanty, Guy Emile Louis, 3,739,987.
Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France: *See*—
Barbier, Pierre Roger, 3,740,423.
Kashihara, Yoshio; Fukuzawa, Shozi; Imamura, Toshio; Kakehi, Minoru; and Watanabe, Masayuki, 3,740,415.
Societe Generale de Constructions Electrique et Mecaniques (Alsthom): *See*—

Dubouchet, Jacques L., 3,739,585.
Societe Nouvelle de Roulements: *See—*
Beauchet, Jean, 3,739,530.
Societe Oriymonde: *See—*
Lafon, Louis, 3,740,397.
Societe S.B.F.: *See—*
Dubreuil, Serge, 3,739,804.
Soehngen, John W., to Celanese Corporation. Spray spun nonwoven sheets. 3,740,302, Cl. 161-59.000.
Soehnlen, Robert M. Dredge convertible to land vehicle for portability. 3,740,075, Cl. 280-415.00b.
Solik, Zdenek: *See—*
Kramenic, Zdenek; Vasek, Vitezslav; Miks, Zbynek; and Solik, Zdenek, 3,739,816.
Solomon, Thomas P.: *See—*
Kisor, Ray C.; Solomon, Thomas P.; and Sutcliffe, Grenville G., 3,739,988.
Soloway, Samuel B.; and Morales, Juan G., to Shell Oil Company. Volatile insecticide. 3,740,428, Cl. 424-219.000.
Soloway, Samuel B.; and Morales, Juan G., to Shell Oil Company. Heiminth control. 3,740,429, Cl. 424-219.000.
Solvay & Cie: *See—*
Gabellieri, Rodolfo; and Osterreith, Michel, 3,740,383.
Sommer, Donald E., to Eaton Corporation. Hoist. 3,740,021, Cl. 254-186.00r.
Sommers, Norman. Boiler cleaning and lubricating composition, and method of use in hot water system. 3,740,352, Cl. 252-548.000.
Sommers, Norman A. Stop-leak and anti-sludge composition and method of use in steam boilers and hot water heating systems. 3,740,337, Cl. 252-72.000.
Somos, Istvan: *See—*
McIntyre, James E.; Piccone, Dante E.; and Somos, Istvan, 3,740,584.
Sondel, Beverly R. Disposable container. 3,739,827, Cl. 150-.500.
Sony Corporation: *See—*
Esashi, Hanjiro; and Kawamata, Katsuyoshi, 3,739,998.
Inaga, Katsu, 3,740,492.
Kihara, Nobutoshi, 3,740,495.
Kubota, Yasuharu, 3,740,458.
Nakada, Yasuo; and Tanaka, Yoshinori, 3,740,744.
Okada, Hisao, 3,740,459.
Sosin, Boleslaw Marian, to Marconi Company Limited, The. Switching system for plural antennas connected to plural inputs. 3,740,756, Cl. 343-853.000.
Soto-Krebs, Luis: *See—*
Hevia, Rafael J.; and Soto-Krebs, Luis, 3,739,549.
Soukeras, John E. Safe personal effects pouches and strip means for under arm or shoulder wear. 3,739,961, Cl. 224-5.00r.
South African Pulp and Paper Industries Limited: *See—*
Smith, Leon; and Myburgh, Henry Hugo, 3,740,310.
Southard, James S., to Conn, C. G., Ltd. Electric organ with chord playing and rhythm systems. 3,740,449, Cl. 84-1.010.
Specialized Electronics Inc.: *See—*
Joseph, Sebastian J., 3,740,706.
Spectral Data Corporation: *See—*
Yost, Edward F., Jr., 3,739,700.
Spectrol Electronics Corporation: *See—*
Hill, Robert D., Jr., 3,739,468.
Spectrotherm Corporation: *See—*
Dickson, Colin G.; and Wickersheim, Kenneth A., 3,740,011.
Spell, Perry W. Agricultural implement. 3,739,858, Cl. 172-59.000.
Sperry Rand Corporation: *See—*
Schoettle, Kenneth L., 3,739,466.
Slaymaker, Wilbur L.; and Long, John H., 3,739,560.
Spies, Johann, to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung. Threshold value switch. 3,740,580, Cl. 307-251.000.
Spong, Fred William: *See—*
Gorog, Istvan; and Spong, Fred William, 3,740,111.
Sprague Electric Company: *See—*
McAdams, Arthur C., Jr.; and Tomaselli, Vincent A., 3,740,624.
Ross, Sidney D.; and Finkelstein, Manuel, 3,740,625.
Springer, Gilbert D., to United Medical Laboratories, Inc. Image transfer printing method. 3,740,265, Cl. 117-235.000.
Sproul, Fred C., Sr. Traffic signal with directional indicator. 3,740,716, Cl. 340-107.00r.
Sproule, C. G., and Associates, Inc.: *See—*
Sproule, Charles G., Jr.; and Wagner, Herbert F., Jr., 3,740,240.
Sproule, Charles G., Jr.; and Wagner, Herbert F., Jr., to Sproule, C. G., and Associates, Inc. Ingot mold hot top heat insulation board and method of preparing same. 3,740,240, Cl. 106-38.250.
Square D Company: *See—*
Kiessling, Rudolf; and Rothweiler, Richard C., 3,740,501.
Squibb, E. R., & Sons, Inc.: *See—*
Clody, Donald E.; Beer, Bernard; Vogel, John; and Horovitz, Zula P., 3,740,433.
Haugwitz, Rudiger D.; and Narayanan, Venkatachala L., 3,740,396.
Rajamani, Puthucode N.; Stern, Howard S.; Murty, Dasika R. K.; and Haney, Thomas A., 3,740,418.
Vandeputte, John, 3,740,424.
Squiers, David J., to Texas Instruments, Incorporated. Power control system. 3,740,585, Cl. 307-252.00b.
Srapenianta, Rigo Artemievich: *See—*
Kaushansky, David Aronovich; Gurevich, Yakov Adolfovich; Zhukov, Boris Grigorievich; Srapeniants, Rigo Artemievich; and Kalyanov, Dmitry Maximovich, 3,740,557.
Staamann, Otto, to Automatic Druckmaschinenfabrik, Firma. Transport head on collating machines for endless forms. 3,739,970, Cl. 226-75.000.
Stachel, Adolf: *See—*
Beyerle, Rudi; Nitz, Rolf-Eberhard; Resag, Klaus; Schraven, Eckhard; and Stachel, Adolf, 3,740,398.
Stachel, Inge: *See—*
Beyerle, Rudi; Nitz, Rolf-Eberhard; Resag, Klaus; Schraven, Eckhard; and Stachel, Adolf, 3,740,398.
Stachel, Sophie: *See—*
Beyerle, Rudi; Nitz, Rolf-Eberhard; Resag, Klaus; Schraven, Eckhard; and Stachel, Adolf, 3,740,398.
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; and Stockhaus, Klaus, to Boehringer Ingelheim G.m.b.H. 2-(N-Cycloalkyl-phenylamino)-2-imidazolines-(2) and salts thereof. 3,740,401, Cl. 260-254.000.
Stahly, Frederick A.: *See—*
Gramza, Eugene P.; and Stahly, Frederick A., 3,740,217.
Stamicarbon N.V.: *See—*
Dahlmans, Johannes J.; and Boesten, Wilhelmus H. J., 3,740,386.
Stance Industries, Inc.: *See—*
Natman, Solomon; and Cohen, Robert A., 3,739,419.
Standard Brands Chemical Industries, Inc.: *See—*
Wax, Ludwig A., 3,740,357.
Standard Oil Company: *See—*
Lee, Richard J.; and Harris, Samuel W., 3,740,387.
Neil, Peter C., 3,740,178.
Standing, Arthur F., to Communications Satellite Corporation. Oil filled stepping switch. 3,740,499, Cl. 200-8.00r.
Stanford Research Institute: *See—*
Reyes, Zoila, 3,740,227.
Stanke, Walter: *See—*
Cremer, Walter; and Stanke, Walter, 3,739,495.
Stanley Drug Products, Inc.: *See—*
Cook, Elton S.; Tanaka, Kinji; and Fujii, Akira, 3,740,438.
Star Expansion Industries Corporation: *See—*
Bell, Walter; and Eager, William A., 3,739,688.
Stark, William Hubbard: *See—*
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Steel, Robert: *See—*
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Steiner, William G.: *See—*
Lady, Robert M., Sr.; and Steiner, William G., 3,740,643.
Stejskal, Ladislav M., to Boeing Company, The. High temperature vacuum creep forming fixture. 3,739,617, Cl. 72-63.000.
Stephens, William K., Jr., to Morris, Philip, Incorporated. Cigarette with coated wrapper ventilation flaps. 3,739,785, Cl. 131-9.000.
Stern, David, to Combined Optical Industries Limited. Antiglare mirror attachments. 3,740,122, Cl. 350-281.000.
Stern, Howard S.: *See—*
Rajamani, Puthucode N.; Stern, Howard S.; Murty, Dasika R. K.; and Haney, Thomas A., 3,740,418.
Steward, Campbell: *See—*
Smagala-Romanoff, Edward A., 3,740,159.
Stiegelmeyer, Joh., & Co., G.m.b.H.: *See—*
Koetter, Helmut, 3,739,406.
Stiller, Paul F., to Cornell Aeronautical Laboratory, Inc. Invalid transfer apparatus. 3,739,407, Cl. 5-81.00b.
Stilwell, Robert G.: *See—*
Cook, George W.; and Stilwell, Robert G., 3,740,491.
Stine, Orrin Burr, to Borden, Inc. Cutter-type box for dispensing packaging film. 3,739,964, Cl. 225-47.000.
Stobb, Anton R. Apparatus for bundling, transporting, and feeding sheets. 3,739,924, Cl. 214-6.00h.
Stock, Arthur, to Rohm & Haas Company. Flameproof device for introduction or removal of fluid contents of a container. 3,739,937, Cl. 220-86.000.
Stockhaus, Klaus: *See—*
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; and Stockhaus, Klaus, 3,740,401.
Stolberger Zink AG fur Bergbau und Huttenbetrieb: *See—*
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Stoltman, Donald D.: *See—*
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Stone Construction Equipment: *See—*
Tertinek, Christian T., 3,740,067.
Stone, Daniel G.: *See—*
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Storing and mixing receptacle: *See—*
Baumann, Erwin; and Beham, Gerhard, 3,739,947.
Strachan, Richard W., to Texas Instruments, Incorporated. Apparatus for controlling the energization of a load. 3,740,613, Cl. 317-13.00c.
Stratton, Jerry L.; and Kessler, George W., to General Electric Company. Time ratio switching control system. 3,740,588, Cl. 307-260.000.
Strobele, Caljon H.: *See—*
Youngstrom, Jerry R.; Anderson, Wilfred K.; Fletcher, Martin Wallace; Strobele, Caljon H.; and Taylor, Kenneth I., 3,740,463.

Strole, John C.; Szerenyi, Laszlo I.; and Moreines, Harold, to Bendix Corporation, The. Three wire digital synchronizer. 3,740,653, Cl. 328-150.000.

Stroterhoff, Howard L., to United States of America, Army. Chemical spot test system. 3,740,196, Cl. 23-253.0tp.

Stuart, Douglas E., to Simmonds Precision Products, Inc. Fuel management system. 3,739,635, Cl. 73-194.00m.

Stupar, Wesley E.: *See—*
Manber, Solomon; McGovern, Michael J.; and Stupar, Wesley E., 3,740,608.

Sturdivant, Jack E. Cotton roll holder. 3,739,477, Cl. 32-35.000.

Sturt, Alan Charles; and Feast, Guildford Alan Arthur John, to BP Chemicals Limited. Polymerisation process. 3,740,368, Cl. 260-29.70r.

Sullivan, Ralph M.: *See—*
Hogrefe, Arthur F.; and Sullivan, Ralph M., 3,740,636.

Sullivan, Robert E. Machine for applying coating material to pipe. 3,739,747, Cl. 118-320.000.

Sumitomo Chemical Co., Ltd.: *See—*
Nakamura, Akihide; Ito, Iko; Kondo, Taizo; and Inamura, Keizo, 3,740,370.

Sumitomo Chemical Company, Limited: *See—*
Akiyama, Hisao; Okano, Shigeru; Suzuki, Hiroyuki; Maezima, Kaoru; Komatsu, Toshiaki; and Katsura, Toyozo, 3,740,411.

Sun Oil Company: *See—*
Berry, Holland J.; and Lewis, David W., 3,739,845.
Vankoski, Joseph C., 3,739,453.

Sun Oil Company of Pennsylvania: *See—*
Ware, Richard E., 3,740,190.
Ware, Richard E., 3,740,191.

Super Tire Engineering Company: *See—*
Schaevitz, Abraham R., 3,739,828.

Sutcliffe, Grenville G.: *See—*
Kisor, Ray C.; Solomon, Thomas P.; and Sutcliffe, Grenville G., 3,739,988.

Suter, Henry, to United States of America, Navy. Sonic detection method and apparatus. 3,740,704, Cl. 340-3.00d.

Suter, Richard E.: *See—*
Grenier, Aime J.; Suter, Richard E.; and Cooper, Lawrence E., 3,740,650.

Suzuki, Akio: *See—*
Miyata, Akira; Okubo, Hideyo; Tomita, Chikayoshi; and Suzuki, Akio, 3,740,323.

Suzuki, Akira: *See—*
Maekawa, Tadashi; Suzuki, Akira; and Haramura, Shigenori, 3,739,868.

Suzuki, Fumio: *See—*
Takubo, Yoshihiko, 3,740,142.

Suzuki, Hiroyuki: *See—*
Akiyama, Hisao; Okano, Shigeru; Suzuki, Hiroyuki; Maezima, Kaoru; Komatsu, Toshiaki; and Katsura, Toyozo, 3,740,411.

Suzuki Motor Company Limited: *See—*
Seki, Yasuharu, 3,739,669.

Suzuki, Norio; Takiguchi, Yoshimi; and Kohashi, Tadao, to Matsushita Electric Industrial Co., Ltd. Electrically luminescent device. 3,740,616, Cl. 317-234.00r.

Svaldi, Marvin A.: *See—*
Jones, Stanley C.; Roszell, Wayne O.; and Svaldi, Marvin A., 3,740,343.

Svensson, Lars-Ake E.: *See—*
Myhr, Lars H.; and Svensson, Lars-Ake E., 3,739,884.

Swaney, C. Barnett, to International Business Machines Corporation. Method adapted for continually updating information on a magnetic tape. 3,740,720, Cl. 340-172.500.

Swanson, Donald F.: *See—*
Johnson, Robert E.; Swanson, Donald F.; and Westergren, George A., 3,739,422.

Swanson, Robert R., to Western Electric Company, Incorporated. Apparatus for straightening axial leaded components. 3,739,819, Cl. 140-147.000.

Swanstrom, John E., Jr. Tools and machine parts and methods from inverse draft forging. 3,739,664, Cl. 81-414,000.

Sweatman, Fraser, Inc.: *See—*
Bickford, Allan M.; and Czajka, Ronald J., 3,739,799.

Sweco, Inc.: *See—*
Miller, Robert P., Jr., 3,739,912.

Sweet, Douglas W.; and Beyerlein, David G., to General Motors Corporation. Anti-lock brake control system with front to rear interlock. 3,740,103, Cl. 303-21.0eb.

Sweetheart Plastics, Inc.: *See—*
MacDaniel, Gene D., 3,739,976.

Swengel, Robert Charles, Sr.; Reyner, Emerson Marshall, II; and Crumley, J. A. Electrical terminal structure. 3,740,202, Cl. 29-191.600.

Swenson Corporation: *See—*
Swenson, Richard F.; and Hisey, Claude B., 3,740,014.

Swenson, Richard F.; and Hisey, Claude B., to Swenson Corporation. Adjustable seat assembly for vehicle. 3,740,014, Cl. 248-373.000.

Swift & Company: *See—*
Ohlson, Carl-Eric; and Ohlson, Eric Oscar, 3,739,510.

Swindells, Derek G., to Emmerson & Renwick Limited. Method and machine for the manufacture of wallpaper. 3,740,298, Cl. 156-553.000.

Switsen, Henry N. Simple speech scrambler. 3,740,477, Cl. 179-1.50r.

Sybron Corporation: *See—*
Anderson, John R.; and Weiss, Charles O., 3,740,331.

Sylvania Electric Products, Inc.: *See—*
Hammond, Michael J.; and Herner, Raymond F., 3,740,250.

Syntex Corporation: *See—*
Harrison, Ian T.; and Fried, John H., 3,740,437.
Keller, Peter H.; and Foskett, Roger D., 3,740,155.

Synvar Associates: *See—*
Ullman, Edwin F.; Call, Ludwig; Leute, Richard K.; and Osiecki, Jeanne H., 3,740,412.

Szabo, Andras I., to Westinghouse Electric Corporation. Numerical contouring control system. 3,740,535, Cl. 235-151.110.

Szekessy, Istvan, to Rexroth und Szekessy Entwicklung GmbH. Circuit system for brake lights. 3,740,715, Cl. 340-72.000.

Szerenyi, Laszlo I.: *See—*
Strole, John C.; Szerenyi, Laszlo I.; and Moreines, Harold, 3,740,653.

Szucas, Attila: *See—*
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Tabor, Patrick M. Open enclosure for explosive charge. 3,739,731, Cl. 109-49.500.

Tache, Arthur De Gaspe: *See—*
Liebergott, Norman; Clayton, David W.; and deMontigny, Raimbault M. A. T., 3,740,311.

Tada, Satoshi: *See—*
Sakurai, Tooshi; Tada, Satoshi; and Kazama, Kazuo, 3,740,119.

Tadakuma, Susumu: *See—*
Inagaki, Junpei; and Tadakuma, Susumu, 3,740,628.

Taft, Barrett L. Apparatus for semi-automatic, high production die casting. 3,739,838, Cl. 164-309.000.

Taggart, Lewis W.: *See—*
Scherer, John G.; and Taggart, Lewis W., 3,739,456.

Tailor, John P. Apparatus for drying rubber crumb and the like. 3,739,485, Cl. 34-57.00a.

Tajima, Masaharu: *See—*
Kimura, Akira; and Tajima, Masaharu, 3,740,160.

Takada, Takezo, to Takata Kojyo Co., Ltd. Safety belt mechanism. 3,740,000, Cl. 242-107.400.

Takahashi, Shiro; and Ichinose, Masataka, to Asahi Glass Co., Ltd. Method and apparatus for forming continuous sheets of glass. 3,740,208, Cl. 65-90.000.

Takahashi, Yasuyoshi; Oshiro, Nobuhiko; Msysui, Tsutomu; Tomokubo, Yoshiaki; and Asaka, Norishisa, to Tokyo Electric Co., Ltd. Electronic digital weighing apparatus. 3,740,536, Cl. 235-151.330.

Takata Kojyo Co., Ltd.: *See—*
Takada, Takezo, 3,740,000.

Takeichi, Kenzo; and Hama, Shigeru, to Matsushita Electric Industrial Co., Ltd. Dial illuminating device. 3,740,540, Cl. 240-2.100.

Takeuchi, Tomio: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Hamada, Masa; Maeda, Kenji; and Okami, Toshiro, 3,740,319.

Takiguchi, Koichi, to Fuji Photo Film Co., Ltd. Solvent fixing process. 3,740,249, Cl. 117-21.000.

Takiguchi, Yoshimi: *See—*
Suzuki, Norio; Takiguchi, Yoshimi; and Kohashi, Tadao, 3,740,616.

Takubo, Yoshihiko: *See—*
Takubo, Yoshihiko, 3,740,142.

Takubo, Yoshihiko, to Suzuki, Fumio and Takubo, Yoshihiko. Apparatus for discriminating and/or identifying jewels. 3,740,142, Cl. 356-30.000.

Talmor, Eliyahu. Method and apparatus for providing jet propelled vehicles with a heat sink. 3,739,581, Cl. 60-206.000.

Tamagawa Kikai Kinzoku Kabushiki Kaisha: *See—*
Seki, Kazunori; and Kazama, Toshio, 3,740,166.

Tanaka, Kinji: *See—*
Cook, Elton S.; Tanaka, Kinji; and Fujii, Akira, 3,740,438.

Tanaka, Yoshinori: *See—*
Nakada, Yasuo; and Tanaka, Yoshinori, 3,740,744.

Taniguchi, Osamu: *See—*
Kumabe, Junichiro; Kitamura, Koichiro; and Taniguchi, Osamu, 3,739,665.

Taub, James M.: *See—*
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Tausworthe, Robert C.: *See—*
United States of America, National Aeronautics and Space Administration, 3,740,671.

Taxil, Marc V.: *See—*
Divoix, Jacques Climeut; and Taxil, Marc V., 3,740,605.

Taylor, David W., to General Motors Corporation. Spark plug gap resistance meter. 3,740,642, Cl. 324-16.00r.

Taylor, Jonathan Todd, to Combustion Engineering, Inc. Ionic flame monitor. 3,740,574, Cl. 307-117.000.

Taylor, Kenneth I.: *See—*
Youngstrom, Jerry R.; Anderson, Wilfred K.; Fletcher, Martin Wallace; Strobele, Caljon H.; and Taylor, Kenneth I., 3,740,463.

Taylor, Leta S.; Johnson, Paul B.; and Huskey, Eugene D. Remote reading gauge indicator unit. 3,739,641, Cl. 73-313.000.

TEC Systems, Inc.: *See—*
Creapo, Ralph W.; Downham, Roy E.; Eckelaert, Jack F.; Frost, John W.; and Klein, David M., 3,739,491.

Technical Oil Tool Corporation: *See—*
Brady, James J., 3,739,888.

Technicon Instrument Corporation: *See—*
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Technicon Instruments Corporation: *See—*
Bellinger, Lawrence S.; and Parker, John C., 3,740,158.
Groner, Warren; Kusnetz, Jacob; and Saunders, Alexander M., 3,740,143.
Mitchell, Douglas G., 3,740,145.
Teich, Rudor M. Automobile theft alarm with ignition controlled automatic arming means. 3,740,713, Cl. 340-64.000.
Tektronix, Inc.: *See—*
Garuts, Valdis E., 3,740,676.
Pace, John W., 3,740,539.
Telefonbau und Normalzeit G.m.b.H.: *See—*
Plank, Karl-Ludwig; and Schwarzer, Michael, 3,740,482.
Teletype Corporation: *See—*
Fechter, Henry G., 3,740,760.
Teletype-Corporation: *See—*
Cook, Harold D., 3,740,645.
Tellberg, Klas Olof. Readily detachable self-aligning joint. 3,740,084, Cl. 287-20.927.
Temple, Ernest E., to Mine Safety Appliances Company. Water pressure actuated electric switch for cable cutter. 3,739,673, Cl. 83-639.000.
Tenn, Jones: *See—*
Smagala-Romanoff, Edward A., 3,740,159.
Tenneco Inc.: *See—*
Carnes, Lyle L., 3,740,020.
Plaga, Charles I., III, 3,739,874.
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Tensor Corporation, The: *See—*
Manning, Lindley; Mc Kee, Robert B.; Zemke, Hubert; and Douglas, Bruce M., 3,740,301.
Ter Veen, William B., to Scovill Manufacturing Company. Intercommunication and remote unit selection system employing a minimum of interconnecting wire. 3,740,487, Cl. 179-37.000.
Teramoto, Iwao; Nakashima, Shinichi; Iwasa, Hitoo; and Mitai, Yukio, to Matsushita Electronics Corporation. Semiconductor structure and method of manufacturing same. 3,740,617, Cl. 317-234.00r.
Terry, John Brian: *See—*
Green, William Harry Francis; and Terry, John Brian, 3,740,479.
Tertinek, Christian T., to Stone Construction Equipment. Compactor wheel assembly. 3,740,067, Cl. 280-43.240.
Teslya, Andrei Mikhailovich: *See—*
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Weber, Lois: *See—*
Herzog, Hershel L.; Weber, Lois; and Shapiro, Elliot L., 3,740,316.

Webster, Harohd F.; and Whetten, N. Rey, to General Electric Company. Air filter utilizing space trapping of charged particles. 3,739,552, Cl. 55-123.000.

Webster, Harold F.: *See—*
Whetten, N. Rey; and Webster, Harold F., 3,739,554.

Weg, Stuart. Ski binding. 3,740,064, Cl. 280-11.35t.

Wegner, Peter: *See—*
Hederich, Volker; Gehrke, Gunter; Neef, Rutger; and Wegner, Peter, 3,740,186.

Wehner, Karl-Heinz; Watermann, Willy; and Bell, Gunter, to Klockner-Werke AG. Self-advancing coal face support system. 3,739,586, Cl. 61-45.00d.

Wehren, Peter; Haas, Helmut; and Demel, Gerhard, to Klockner-Humboldt-Deutz Aktiengesellschaft. Vibrating mill. 3,739,991, Cl. 241-45.000.

Weichselbaum, Theodore B.: *See—*
Wilhelmson, Jack L.; Weichselbaum, Theodore B.; and Braun, Vernon F., 3,739,943.

Weiner, Philip D., to Echrich, Peter, & Sons, Inc. Method of forming a beef loaf. 3,740,235, Cl. 99-107.000.

Weintraub, Arthur; Kalina, Henry A.; and Cahill, Robert F., to International Telephone and Telegraph Corporation. Tire tread depth measurement system. 3,740,710, Cl. 340-52.00r.

Weisglass, Louis L., to Berkey Technical. Color enlarging apparatus. 3,740,135, Cl. 355-32.000.

Weiss, Charles O.: *See—*
Anderson, John R.; and Weiss, Charles O., 3,740,331.

Weld, Christopher M.: *See—*
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Wells, Bernard L.: *See—*
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Wells Manufacturing Corporation: *See—*
Boudeman, Robert J., 3,739,561.

Wender, David C.; and Jeong, Tung H., to International Holographics, Inc. Instant stable film processing method. 3,739,702, Cl. 95-14.000.

Wentz, John L., to Westinghouse Electric Corporation. Communication means. 3,740,560, Cl. 250-199.000.

Wescor, Inc.: *See—*
Campbell, Eric C., 3,739,629.

Wesley, Neil G., to Adams, Beatrice N. Air driven modular tandeum electrical generator. 3,740,565, Cl. 290-55.000.
West, Robert C.: *See—*
Woods, Edward G.; and West, Robert C., 3,739,852.
Westergren, George A.: *See—*
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Western Electric Company, Incorporated: *See—*
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Swanson, Robert R., 3,739,819.
Western Gear Corporation: *See—*
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Westinghouse Air Brake Company: *See—*
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Westinghouse Electric Corporation: *See—*
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Kosanovich, Nicholas S.; and Langley, Morley P., 3,740,738.
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Thorne-Booth, George M., 3,740,549.
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Westmoreland, Julius C. Precision disc springs. 3,740,045, Cl. 267-162.000.
Westmoreland, Julius C. Vacuum switch. 3,740,511, Cl. 200-168.00g.
Weston Instruments, Inc.: *See—*
Fleck, Horst G.; Rome, Martin; and Wixted, Joseph M., 3,740,561.
Westover, Virginia, to Chemex Corporation. Protective holder. 3,739,932, Cl. 215-100.00a.
Weyerhaeuser Company: *See—*
Comstock, Gilbert L., 3,739,490.
Whalen, James M., to Remcor Products Company. Water cooler heat exchanger. 3,739,842, Cl. 165-164.000.
Wheeler, Eugene F. Clamp for well pipe. 3,739,434, Cl. 24-249.0dp.
Whetten, N. Rey: *See—*
Webster, Harohd F.; and Whetten, N. Rey, 3,739,552.
Whetten, N. Rey; and Webster, Harold F., to General Electric Company. Air filter utilizing alternating current electric fields. 3,739,554, Cl. 55-123.000.
Whetten, Nathan Rey, to General Electric Company. Method and apparatus for measuring size distribution of particles using a three-dimensional alternating current electric field. 3,740,149, Cl. 356-102.000.
Whetten, Nathan Rey, to General Electric Company. Method and apparatus for measuring size distribution of particles using a two-dimensional alternating current electric field. 3,740,553, Cl. 250-41.9ds.
Whipperman, Ronald Lee, to Abbott Laboratories. Label useful for blind clinical studies of a medicament and method of the manufacture thereof. 3,740,081, Cl. 283-6.000.
Whirlpool Corporation: *See—*
Johnson, Robert E.; Swanson, Donald F.; and Westergren, George A., 3,739,422.
White, Douglas F.; Scardron, Marvin D.; and Faul, Joseph C., to American Standard, Inc. Airspeed and altitude measuring device. 3,739,638, Cl. 73-181.000.
White, Edward L.; Schwarcz, Joseph; and Lang, William D., to N L Industries, Inc. Antimony-containing inorganic composition of matter and method for preparing same. 3,740,245, Cl. 106-303.000.
White, Lawrence K. Snow leveler. 3,739,859, Cl. 172-145.000.
White, Vincent F.: *See—*
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Whitfield, John H., Jr., to Esso Production Company. Stinger connection. 3,739,590, Cl. 61-72.300.
Whitney, John A.; Woods, Richard E.; and Hohman, William H., to Franklin Electric Co., Inc. Motor reversing and stopping circuit. 3,740,632, Cl. 318-289.000.
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Wienand, Michael; Jensen, Klaus; Primessing, Franz; and Alfter, Franz-Werner, to Dynamit Nobel Aktiengesellschaft. Apparatus for the production of wound pipe of thermoplastic synthetic material. 3,740,294, Cl. 156-429.000.
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Wilcox, Milton E., to Motorola, Inc. Automatic gain control circuit. 3,740,471, Cl. 178-7.30r.
Wildman, J. Grant. Crease cutter. 3,739,473, Cl. 30-164.900.
Wilharm, Treo, to Bosch, Robert, Photokino G.m.b.H. Operating means for use in fading mechanisms of motion picture cameras. 3,740,146, Cl. 352-91.000.
Wilhelmson, Jack L.; Weichselbaum, Theodore B.; and Braun, Vernon F., to Sherwood Medical Industries, Inc. Infusion system. 3,739,943, Cl. 222-59.000.
Wilk, Stanley H.: *See—*
Niederjohn, Russell K.; and Wilk, Stanley H., 3,740,684.
Wilke, Joseph V., to Graco Inc. Liquid agitator and dispensing system. 3,740,026, Cl. 259-67.000.
Wilkening, Gail A.; and Hefley, Ervin R., to Prentice, E. V., Co. Pressure regulating system for a dryer apparatus. 3,739,484, Cl. 34-51.000.
Willems, Jozef Frans; and Schots, Paul Maurice, to Agfa-Gevaert. Development of photographic material. 3,740,221, Cl. 96-29.00r.
Williams, Laurence Lyman; and Coscia, Anthony Thomas, to American Cyanamid Company. Thermosetting glyoxalated ionic glucopyranosyl polymer and wet strength paper having a content thereof. 3,740,391, Cl. 260-233.30r.
Williams, Leland E.: *See—*
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Williams, Raymond G.: *See—*
Rittler, Alfred J.; Fantuzzo, Joseph; and Williams, Raymond G., 3,739,748.
Williams, Richard D.; and Michaels, Fred G., to General Motors Corporation. Shift control mechanism. 3,739,656, Cl. 74-473.00r.
Williams, Russell T. Shiftable footing for trailers. 3,740,077, Cl. 280-475.000.
Williamson, David Vincent Stewart, to Du Pont de Nemours, E. I., and Company. Coated yarns. 3,739,567, Cl. 57-153.000.
Willis, Donald Henry, to RCA Corporation. Horizontal oscillator control for plural operating mode television receivers. 3,740,489, Cl. 178-69.5tv.
Willox, J. Hebden. Tamper-resistant guard duct for electric pole riser cables. 3,740,455, Cl. 174-101.000.
Wilms, Carl Alfred, to Jackson, Byron, Inc. Chain actuated pipe tongs. 3,739,663, Cl. 81-57.390.
Wilson, Allen B. Aid for use in sitting down or standing up. 3,739,793, Cl. 135-45.000.
Wilson, David G., to Massachusetts Institute of Technology. Vortex classifier. 3,739,910, Cl. 209-144.000.
Wilson, Laurie A.: *See—*
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Wilson, Robert Morris: *See—*
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Windstrup, Robert F., to Continental Can Company, Inc. Modular conveyor support assembly. 3,739,904, Cl. 196-204.000.
Winkelblech, Kermit W., to Du Pont de Nemours, E. I., and Company. Colloidal dispersions of ammonia-comminuted particles of methylmethacrylate-acid-copolymers. 3,740,367, Cl. 260-29.67a.
Winkelman, Earl A.; and Fitzsimmons, Paul A., to Matthews, Jas H., & Co. Retread tire marking method and apparatus. 3,739,662, Cl. 76-107.00r.
Winn, James B., Jr., to Archilithic Co., The. Dispensing gun for fiber rovings and cementitious materials. 3,740,260, Cl. 117-104.00r.
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Wohlfart, Kurt; and Marburger, Heinz, to Rowenta-Werke Gesellschaft mit beschrankter Haftung. Bimetallic timing mechanism for automatic bread toaster. 3,740,528, Cl. 219-510.000.
Wohlwend, Maurice. Reciprocating linear hydraulic motors. 3,739,863, Cl. 173-119.000.
Wolda, Tiete O., to Boyles Industries, Limited. Wireline core barrel with resilient latch fingers. 3,739,865, Cl. 175-244.000.
Wolf, Lloyd J. Fluid brake system with skid control. 3,740,104, Cl. 303-21.0bb.

Wolf, Margery S.; and Beispel, Robert, to Extek, Inc., mesne. Contact printing on a moving layer of light-sensitive material. 3,740,140, Cl. 355-91.000.

Wolfe, Russell C., to Dixie Manufacturing Company, Inc. Mating shear seal device for connecting vessels and the like together. 3,739,589, Cl. 61-69.00r.

Wolff, Erich; Lassig, Wolfgang; Seelig, Eckart; and Bergisch, Gunther Kolf, to Agfa-Gevaert Aktiengesellschaft. Photosensitive polymer layers of vinyl alcohol polymers. 3,740,376, Cl. 260-73.00r.

Wolfgang, Georg: *See—*
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Woltzen, Herschel E.: *See—*
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Wong, Gim. Automatic starting device for automotive engines and the like. 3,740,564, Cl. 290-38.000.

Wood, Wilbur R., to Westinghouse Electric Corporation. Optical straight line detector. 3,740,153, Cl. 356-170.000.

Woodruff, Gene N., to Phillips Petroleum Company. Polyolefin emulsions containing N,N-dimethylsulfenyl dithiocarbamates. 3,740,201, Cl. 260-29.70m.

Woods, Edward G.; and West, Robert C., to Esso Production Research Company. Thermal process for recovering oil. 3,739,852, Cl. 166-303.000.

Woods, Richard E.: *See—*
Whitney, John A.; Woods, Richard E.; and Hohman, William H., 3,740,632.

Woonton, Kent; Short, Jeffrey R., III; and Roach, Kenneth N., to Short, J. R., Milling Company. Method for making foundry moulds. 3,739,834, Cl. 164-18.000.

Worden, Donald A., to Marietta Scientific Controls, Inc. Power and speed control for double-acting cylinder-and-piston motor. 3,739,813, Cl. 137-625.650.

Workman, Larry D.: *See—*
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Wroblewski, Richard J., to Eastman Kodak Company. Strip take-up treading device. 3,740,001, Cl. 242-210.000.

Wunning, Joachim, to Archelin, J. Apparatus for the production of bound bodies of bulking clay. 3,740,182, Cl. 425-446.000.

Wurlitzer Company, The: *See—*
Olszowka, Robert F.; Thomas, Howard M.; and Gong, Ray F., 3,740,448.

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Yamashita, Akio, to Matsushita Electric Industrial Co., Ltd. Mechano-electrical transducer device. 3,740,689, Cl. 338-2.000.

Yano, Nobumitsu; Fukushima, Masao; Fukinbara, Itaru; Kishi, Masanori; and Kimura, Kazuyoshi, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for producing colored pearl essences. 3,740,244, Cl. 106-291.000.

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Sitver, Leonard Allan; and Yelin, Robert Emil, 3,740,188.

Yerman, Alexander J.: *See—*
Underwood, Joe B.; and Yerman, Alexander J., 3,739,644.

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Heller, Paul R.; Ying, Sui-Chun; and Luzader, James E., 3,740,595.

Yonaites, Gary A.; and Yonaites, Rosemary C. Litter scoop. 3,739,418, Cl. 15-104.800.

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York, Raymond A., to Beloit Corporation. Non-return valve for injection molding machine. 3,739,958, Cl. 222-404.000.

York Research & Development Corporation: *See—*
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Yoshida, Mitsutoshi: *See—*
Nagase, Yukihiko; Yoshida, Mitsutoshi; Kimoto, Yohichi; and Sakano, Toyoshi, 3,739,577.

Yoshioka, Atsuo: *See—*
Kuga, Mutsuo; Iwasaki, Tatuo; Kyo, Kayomon; and Yoshioka, Atsuo, 3,740,246.

Yoshioka, Yoshio; Hirasama, Kunio; and Kashimura, Katsuichi, to Hitachi Ltd. Fluid operated piston circuit breaker with floating position valve actuator. 3,740,506, Cl. 200-82.00b.

Yost, Edward F., Jr., to Spectral Data Corporation. Preregistered multispectral photographs. 3,739,700, Cl. 95-12.200.

Young, Henry J. Auxiliary door lock. 3,739,608, Cl. 70-209.000.

Young, Richard W.: *See—*
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Youngs, Roger W.: *See—*
Hyde, James A.; and Youngs, Roger W., 3,739,795.

Youngstrom, Jerry R.; Anderson, Wilfred K.; Fletcher, Martin Wallace; Strobele, Caljon H.; and Taylor, Kenneth I., to Memorex Corporation. Editing system. 3,740,463, Cl. 178-6.60a.

Zaidon Hejin Biseibutsu Kogaku Kenkyu Kai: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Hamada, Masa; Maeda, Kenji; and Okami, Toshiro, 3,740,319.

Zar, Jacob L., to Avco Corporation. Superconductive magnets used in magnetohydrodynamic devices. 3,740,593, Cl. 310-11.000.

Zdanowski, Richard E.: *See—*
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Zeile, Karl: *See—*
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Koppe, Herbert; Engelhardt, Albrecht; and Zeile, Karl, 3,740,444.

Zemke, Hubert: *See—*
Manning, Lindley; Mc Kee, Robert B.; Zemke, Hubert; and Douglas, Bruce M., 3,740,301.

Zenhausern, Heinrich. Mounting support for climbing elements. 3,740,083, Cl. 287-20.300.

Zerlauth, Ferdinand, to Brown, Boveri Sulzer Turbomachinery, Limited. Deflection control means for machine housings. 3,740,164, Cl. 415-134.000.

Zhukov, Boris Grigorievich: *See—*
Kaushansky, David Aronovich; Gurevich, Yakov Adolfovich; Zhukov, Boris Grigorievich; Srapeniants, Rigo Artemievich; and Kalyanov, Dmitry Maximovich, 3,740,557.

Zhuravlev, Semen Vladimirovich: *See—*
Gritsenko, Anna Nikitichna; Vikhlyaev, Jury Ivanovich; Zhuravlev, Semen Vladimirovich; Kaverina, Natalya Veniaminovna; Senova, Zlata Petrovna; and Ulyanova, Olga Vasilievna, 3,740,395.

Ziegler, Raymond J. Fishing tackle box. 3,739,518, Cl. 43-57.50r.

Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen: *See—*
Ruf, Eberhard, 3,740,025.

Zimmermann, Jean Pierre: *See—*
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Zimmermann, Max: *See—*
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Zimmermann, Vincent H.: *See—*
Bland, Aubrey M.; and Zimmermann, Vincent H., 3,739,580.

Zottoli, Robert A., to Grass Instrument Company. Print roll and mounting means. 3,739,722, Cl. 101-375.000.

Zucchino, Paul: *See—*
Versaci, Antonio A.; and Zucchino, Paul, 3,739,636.

Zupancic, Anton Z., to Addressograph-Multigraph Corporation. Imprinting device. 3,739,718, Cl. 101-45.000.

Zurawsky, Dieter: *See—*
Kruel, Martin; Zurawsky, Dieter; and Juntgen, Harald, 3,739,550.

Zychal, Edward; and Neuhard, Barry L., to Zyco Manufacturing Inc. Cassette for coiled knife blade. 3,739,674, Cl. 83-651.000.

Zyco Manufacturing Inc.: *See—*
Zychal, Edward; and Neuhard, Barry L., 3,739,674.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 16TH DAY OF JANUARY, 1973

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Akzona Inc.: *See*—
Bentholm, Svend A. R., and Koenen. Re. 27,679.

Bayer Aktiengesellschaft: *See*—
Schnell, Hermann, Bottenbruch, Weirauch, Hechelhammer, Streib, and Fritz. Re. 27,682.

Bell Telephone Laboratories, Inc.: *See*—
McNair, Irving M., Jr. Re. 27,680.

Bentholm, Svend A. R., and W. E. Koenen, to Akzona Inc. Process for the manufacture of rapidly disintegrating solid dosage unit forms. Re. 27,679, 6–19–73, Cl. 424—148.

Bottenbruch, Ludwig: *See*—
Schnell, Hermann, Bottenbruch, Weirauch, Hechelhammer, Streib, and Fritz. Re. 27,682.

Donlon, Roger M.: *See*—
Grether, Tobias, and Donlon. Re. 27,674.

Eyelet Specialty Co.: *See*—
Landen, William J. Re. 27,673.

Erickson, Albin R., to Textron Inc. Ski mounting apparatus for snowmobiles. Re. 27,676, 6–19–73, Cl. 180—5.

Fritz, Gerhard: *See*—
Schnell, Hermann, Bottenbruch, Weirauch, Hechelhammer, Streib, and Fritz. Re. 27,682.

Gaddie, Preston G. Dry chemical feeder method and apparatus. Re. 27,681, 6–19–73, Cl. 259—18.

Giletta, Dario: *See*—
Pacciarini, Antonio, and Giletta. Re. 27,675.

Glassman, Jacob A. Catamenial tampon. Re. 27,677, 6–19–73, Cl. 128—270.

Grether, Tobias, and R. M. Donlon, to Hi-Gear Harvester Co. Celery harvester. Re. 27,674, 6–19–73, Cl. 56—327.

Hechelhammer, Wilhelm: *See*—
Schnell, Hermann, Bottenbruch, Weirauch, Hechelhammer, Streib, and Fritz. Re. 27,682.

Hi-Gear Harvester Co.: *See*—
Grether, Tobias, and Donlon. Re. 27,674.

Industries Pirelli S.p.A.: *See*—
Pacciarini, Antonio, and Giletta. Re. 27,675.

Koenen, Wilhelm E.: *See*—
Bentholm, Svend A. R., and Koenen. Re. 27,679.

Landen, William J., to Eyelet Specialty Co. Bottle safety closure. Re. 27,673, 6–19–73, Cl. 215—9.

Louzos, Demetrios V., and G. W. Mellors, to Union Carbide Corp. Cathode material for solid state batteries. Re. 27,684, 6–19–73, Cl. 136—121.

McNair, Irving M., Jr., to Bell Telephone Laboratories, Inc. Polarity sensitive voltage insertion circuit for long subscriber loops. Re. 27,680, 6–19–73, Cl. 179—16.

Mellors, Geoffrey W.: *See*—
Louzos, Demetrios V., and Mellors. Re. 27,684.

Oriomoski, Roger W., to Reed Rolled Thread Die Co. Self-locking screws. Re. 27,678, 6–19–73, Cl. 151—22.

Pacciarini, Antonio, and D. Giletta, by Industries Pirelli S.p.A. Method of printing an embossed pattern along the peripheral band of a toroidal article. Re. 27,675, 6–19–73, Cl. 264—94.

Reed Rolled Thread Die Co.: *See*—
Oriomoski, Roger W. Re. 27,678.

Rubin, Richard J. Cart storage assembly. Re. 27,683, 6–19–73, Cl. 280—33.990.

Schnell, Hermann, L. Bottenbruch, K. Weirauch, W. Hechelhammer, H. Streib, and G. Fritz, to Bayer Aktiengesellschaft. Process for the production of thermoplastic polycarbonates. Re. 27,682, 6–19–73, Cl. 260—47.

Streib, Hugo: *See*—
Schnell, Hermann, Bottenbruch, Weirauch, Hechelhammer, Streib, and Fritz. Re. 27,682.

Textron Inc.: *See*—
Erickson, Albin R. Re. 27,676.

Union Carbide Corp.: *See*—
Louzos, Demetrios V., and Mellors. Re. 27,684.

Weirauch, Kurt: *See*—
Schnell, Hermann, Bottenbruch, Weirauch, Hechelhammer, Streib, and Fritz. Re. 27,682.

LIST OF PLANT PATENTEES

Armstrong, David L., to Armstrong Nurseries, Inc. Peach tree. 3,360, 6–19–73, Cl. 43.

Armstrong Nurseries, Inc.: *See*—
Armstrong, David L. 3,360.

De Beer, Antonius P. J. Conifer plant. 3,361, 6–19–73, Cl. 50.

Kerrigan, Howard. Azalea plant. 3,362, 6–19–73, Cl. 55.

Kerrigan, Howard. Azalea plant. 3,363, 6–19–73, Cl. 56.

Kerrigan, Howard. Azalea plant. 3,364, 6–19–73, Cl. 56.

LIST OF DESIGN PATENTEES

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256 3,739,620
287 3,739,621
316 3,739,622
339 3,739,623
422 3,739,624

CLASS 73
12 3,739,625
16 3,739,626
28 3,739,627
67.7 3,739,628
77 3,739,629
81 3,739,630
136A 3,739,632
144 3,739,633
146.3 3,739,637
147 3,739,634
181 3,739,638
190R 3,739,639
194EM 3,739,640
194E 3,739,636
194M 3,739,635
313 3,739,641
371 3,739,642
378.3 3,739,643
398AR 3,739,644
407R 3,739,645

CLASS 74
5.34 3,739,646
10.6 3,739,650
15.63 3,739,647
39.2 3,739,648
89.22 3,739,649
230.17M 3,739,651
421A 3,739,652
424.5 3,739,653
461 3,739,654
469 3,739,655
473R 3,739,656
587 3,739,657
751 3,739,659
815 3,739,660
866 3,739,661

CLASS 75
.5AC 3,740,210
122 3,740,211
128C 3,740,212
128 3,740,213
178R 3,740,214
208 3,740,215

CLASS 76
107R 3,739,662

CLASS 81
57.39 3,739,663
414 3,739,664

CLASS 82
9 3,739,665
59 3,739,666
3,740,666

CLASS 83
92 3,739,667
102 3,739,668
123 3,739,669
210 3,739,670
230 3,739,671
256 3,739,672
639 3,739,673
651 3,739,674
659 3,739,675
698 3,739,676
745 3,739,678
789 3,739,679

CLASS 84
1.01 3,740,448
3,740,449
1.24 3,740,450
101 3,740,447
266 3,739,680
322 3,739,681

CLASS 85
41 3,739,682
70 3,739,683
73 3,739,684

CLASS 89
33F 3,739,685

CLASS 90
1.6 3,739,686
15.1R 3,739,687
21R 3,739,688

CLASS 91
3 3,739,689
28 3,739,690
506 3,739,691
3,739,692

CLASS 92
13 3,739,693

CLASS 93
33H 3,739,694
39.1R 3,739,695
53SD 3,739,696

CLASS 94
730 3,739,658

CLASS 95
1.1 3,739,697
3,739,698
12.2 3,739,700
12.5 3,739,699
13 3,739,701
14 3,739,702
15 3,739,703
57 3,739,704
89D 3,739,706
89R 3,739,705

CLASS 96
1 3,740,216
1.5 3,740,217
3,740,218
3,740,223
1.8 3,740,219
29R 3,740,220
3,740,221
30 3,740,222
33 3,740,224
43 3,740,225
64R 3,740,226
66.3 3,740,227
84A 3,740,228
91R 3,740,229

CLASS 98
33R 3,739,707
72 3,739,708

CLASS 99
48 3,740,233
69 3,740,230
71 3,740,231
3,740,232
107 3,740,234
3,740,235
126 3,740,236
171CT 3,740,238
171B 3,740,239
171S 3,740,237
289 3,739,709
348 3,739,710
3,739,711
349 3,739,712
533 3,739,713

CLASS 100
34 3,739,714
100 3,739,715

CLASS 101
37 3,739,716
3,739,717
45 3,739,718
93C 3,739,719
3,739,720
366 3,739,721
375 3,739,722

CLASS 102
20 3,739,723
28R 3,739,724
70 3,739,725
70.2R 3,739,726

CLASS 104
103 3,739,727
173 3,739,728

CLASS 105
358 3,739,729

CLASS 106
38.25 3,740,240
47R 3,740,241
54 3,740,242
65 3,740,243
291 3,740,244
303 3,740,245

CLASS 108
161 3,739,730

CLASS 109
49.5 3,739,731

CLASS 110
1F 3,739,732

CLASS 112
121.12 3,739,733
219A 3,739,734
220 3,739,735

CLASS 114
.5D 3,739,736
3,739,737
144R 3,739,738

CLASS 116
119 3,739,739
121 3,739,740
124 3,739,741

CLASS 117
7 3,740,246
8 3,740,247
13 3,740,248
21 3,740,249
33.5C 3,740,250
33.5L 3,740,251
34 3,740,252
62 3,740,253
71R 3,740,254
74 3,740,255
93.1CD 3,740,256
93.1DH 3,740,257
94 3,740,258
3,740,259
3,740,262
104R 3,740,260
107.2P 3,740,261

126GR 3,740,263
136 3,740,264
235 3,740,265
240 3,740,266

CLASS 118

2 3,739,742
7 3,739,745
19 3,739,743
3,739,744
62 3,739,746
320 3,739,747
637 3,739,748
3,739,749

CLASS 119

1 3,739,750
103 3,739,751

CLASS 122

235Z 3,739,752

CLASS 123

8.09 3,739,753
8.27 3,739,754
43B 3,739,755
44C 3,739,756
102 3,739,757
119R 3,739,758
127 3,739,760
136 3,739,761
139BG 3,739,762
148E 3,739,759
179K 3,739,763

CLASS 124

11R 3,739,764
25 3,739,765

CLASS 126

19R 3,739,766
113 3,739,767

CLASS 127

106 3,739,769

CLASS 128

2 3,739,768
6 3,739,770
51 3,739,771
80G 3,739,772
92BC 3,739,773
142.7 3,739,774
145.8 3,739,775
3,739,776
214E 3,739,777
214.4 3,739,778
218DA 3,739,779
220 3,739,780
263 3,739,781
270 Re.27,677
285 3,739,782
295 3,739,783
320 3,739,784

CLASS 131

9 3,739,785
86 3,739,786

CLASS 132

9 3,739,787
33R 3,739,788
88.7 3,739,789

CLASS 134

10 3,740,267
60 3,739,790
157 3,739,791

CLASS 135

16 3,739,792
45 3,739,793

CLASS 136

6FS 3,740,268
86E 3,740,269
107 3,740,271
111 3,740,270
121 Re.27,684
162 3,740,272
202 3,740,273

CLASS 137

1 3,739,794
5 3,739,795
68 3,739,796
81.5 3,739,814
85 3,739,797
3,739,798
88 3,739,799
93 3,739,800
102 3,739,801
116.3 3,739,802
255 3,739,803
269 3,739,804
294 3,739,805
359 3,739,806
469 3,739,807
493 3,739,808
565.2 3,739,809
568 3,739,810
625.27 3,739,811
625.32 3,739,812
625.65 3,739,813

CLASS 138

122 3,739,815

CLASS 139

12 3,739,816
25 3,739,817

CLASS 140

147 3,739,818
3,739,819

CLASS 141

284 3,739,820
392 3,739,821

CLASS 142

1 3,739,822

CLASS 144

2N 3,739,823
144 3,739,824
323 3,739,826

CLASS 145

51 3,739,825

CLASS 146

102B 3,739,677

CLASS 148

12 3,740,274
26 3,740,275
175 3,740,276

CLASS 149

11 3,740,278
15 3,740,277
19 3,740,279

CLASS 150

.5 3,739,827

CLASS 151

22 Re.27,678

CLASS 152

209R 3,739,828
330 3,739,829
398 3,739,830

CLASS 156

11 3,740,280
99 3,740,281
148 3,740,282
162 3,740,283
171 3,740,284
173 3,740,285
219 3,740,286
272 3,740,287
275 3,740,288
283 3,740,289
310 3,740,290
392 3,740,291
396 3,740,292
415 3,740,293
429 3,740,294
499 3,740,295
504 3,740,296
523 3,740,297
553 3,740,298
577 3,740,299
583 3,740,300

CLASS 157

1.028 3,739,831

CLASS 160

133 3,739,832

CLASS 161

58 3,740,301
59 3,740,302
67 3,740,303
175 3,740,304
183 3,740,305
214 3,740,306

CLASS 162

17 3,740,307
3,740,308
36 3,740,309
65 3,740,310
3,740,311
306 3,740,312

CLASS 164

6 3,739,833
18 3,739,834
35 3,739,835
72 3,739,836
283 3,739,837
309 3,739,838

CLASS 165

1 3,739,839
69 3,739,840
146 3,739,841
164 3,739,842
170 3,739,843

CLASS 166

.5 3,739,844
65R 3,739,845
89 3,739,846
107 3,739,847
216 3,739,849
224 3,739,850
254 3,739,851
274 3,739,848
303 3,739,852
315 3,739,853

CLASS 171

61 3,739,854
63 3,739,855

CLASS 172

21 3,739,856
22 3,739,857
59 3,739,858
145 3,739,859
612 3,739,860
793 3,739,861

CLASS 173

16 3,739,862
119 3,739,863

CLASS 174

38 3,740,452
58 3,740,451
75C 3,740,453
101 3,740,455
101.5 3,740,454

CLASS 175

228 3,739,864
244 3,739,865

CLASS 176

37 3,740,313
68 3,740,314

CLASS 177

178 3,739,866

CLASS 178

5.4AC 3,740,462
5.4CD 3,740,457
5.4HE 3,740,459
5.4SD 3,740,456
3,740,461
5.4ST 3,740,458
5.8A 3,740,460
6.6A 3,740,463
6.8 3,740,464
3,740,465
3,740,466
3,740,467
3,740,468
3,740,469
7.3R 3,740,471
7.3S 3,740,470
7.5SE 3,740,472
7.5R 3,740,473
3,740,474
22 3,740,475
69.5TV 3,740,489

CLASS 179

1SA 3,740,476
1.5R 3,740,477
15AQ 3,740,479
3,740,480
3,740,483
15BL 3,740,481
15BS 3,740,478
15A 3,740,482
16F Re.27,680
18AD 3,740,485
18J 3,740,484
37 3,740,487
82 3,740,488
84VF 3,740,490
100.2CA 3,740,493
100.2ZA 3,740,492
100.2R 3,740,491
100.2T 3,740,495
100.4LK 3,740,494
111E 3,740,496
175.3 3,740,497
918FA 3,740,486

CLASS 180

5R Re.27,676
3,739,867
79.2R 3,739,868

CLASS 181

.5FS 3,739,870
.5NP 3,739,871
.5H 3,739,869
33HB 3,739,872
36B 3,739,873
48 3,739,874

CLASS 182

6 3,739,875
27 3,739,876

CLASS 184

45R 3,739,877

CLASS 186

1AC 3,739,878

CLASS 187

24 3,739,879
29R 3,739,880
94 3,739,881

CLASS 188

1C 3,739,882
71.1 3,739,883
296 3,739,884
300 3,739,885

CLASS 190

49 3,739,886

CLASS 191

3,740,498

CLASS 192

21.5 3,739,887
45.2 3,739,889
48.92 3,739,888
53E 3,739,890
58C 3,739,891
67R 3,739,892
70.27 3,739,896

CLASS 193

17 3,739,893
35MD 3,739,894

CLASS 194

100A 3,739,895

CLASS 195

2 3,740,315
51G 3,740,317
51R 3,740,316
65 3,740,318
80R 3,740,319
103.5R 3,740,320
127 3,740,321

CLASS 196

204 3,739,904

CLASS 197

55 3,739,897
3,739,898
82 3,739,899

CLASS 198

19 3,739,900
30 3,739,901
33AB 3,739,902
35 3,739,903

CLASS 200

8R 3,740,499
14.8A 3,740,508
16C 3,740,500
16R 3,740,501
38FA 3,740,502
47 3,740,504
61.47 3,740,503
61.53 3,740,505
82B 3,740,506
144B 3,740,507
148B 3,740,509
166K 3,740,510
168G 3,740,511

CLASS 202

68.003 3,739,998

CLASS 203

48 3,740,322

CLASS 204

25 3,740,323
129.7 3,740,324
169 3,740,325
195M 3,740,326
298 3,740,327

CLASS 206

46FR 3,739,905
65R 3,739,906

CLASS 208

139 3,740,328

CLASS 209

26 3,739,907
75 3,739,908
90 3,739,909
144 3,739,910
460 3,739,911

CLASS 210

18 3,740,363
21 3,740,329
23 3,740,330
53 3,740,331
63 3,739,912
3,740,332
242 3,739,913
333 3,739,914
394 3,739,915
493 3,739,916

CLASS 211

40 3,739,917
44 3,739,918
57 3,739,919
123 3,739,920
177 3,739,921

CLASS 212

125 3,739,922

CLASS 214

1BC 3,739,923
6 3,739,924
7 3,739,925
17CA 3,739,926
83.3 3,739,927
85.5 3,739,928
313 3,739,929
390 3,739,930
670 3,739,931

CLASS 215

9 Re.27,673
3,739,933
3,739,934
100A 3,739,932

CLASS 219

10.41 3,740,512
10.49 3,740,513
10.55 3,740,514
3,740,515
10.75 3,740,516
50 3,740,518
60A 3,740,520
68 3,740,517
69E 3,740,519
85 3,740,521
121FM 3,740,523
121LM 3,740,524
121P 3,740,522
137 3,740,525
3,740,526
365 3,740,527
510 3,740,528
535 3,740,529

CLASS 220

23.4 3,739,935
86R 3,739,936
86 3,739,937
90.4 3,739,938
97C 3,739,939
113 3,739,940

CLASS 222

54 3,739,942
59 3,739,943
70 3,739,944
129 3,739,945
129.4 3,739,946
136 3,739,947
153 3,739,941
166 3,739,948
180 3,739,949
182 3,739,950
193 3,739,951
213 3,739,952
318 3,739,953
357 3,739,954
385 3,739,955
396 3,739,956
404 3,739,958
556 3,739,957

CLASS 223

63 3,739,959
73 3,739,960

CLASS 224

5R 3,739,961

CLASS 225

2 3,739,963
47 3,739,964
96 3,739,965
102 3,739,962

CLASS 226

7 3,739,967
30 3,739,966
31 3,739,969
75 3,739,970
172 3,739,971

CLASS 227

3 3,739,972
120 3,739,973

CLASS 228

2 3,739,974

CLASS 229

8 3,739,975
43 3,739,976
55 3,739,977

CLASS 235

61PK 3,739,978
61.7B 3,740,530
61.7R 3,740,531
92EV 3,740,532
151.11 3,740,535
151.3 3,740,533
3,740,534
151.33 3,740,536
152 3,740,537
177 3,740,538
197 3,740,539
201PF 3,739,979

CLASS 236

49 3,739,980

CLASS 238

92 3,739,981

CLASS 239

1 3,739,982
101 3,739,983
172 3,739,985
221 3,739,986
265.17 3,739,984
265.39 3,739,987
288 3,739,968
3,739,988
399 3,739,989
425 3,739,990

CLASS 240

2W 3,740,541
2.1 3,740,540
6.4R 3,740,543
8.22 3,740,544
10F 3,740,542
25 3,740,545
52.1 3,740,546
144 3,740,547

CLASS 241

45 3,739,991
46B 3,739,992
70 3,739,993
74 3,739,994

CLASS 242

18G 3,739,995
39 3,739,996
67.1R 3,739,997
82 3,739,999
107.4 3,740,000
210 3,740,001

CLASS 244

3.19 3,740,002
3.22 3,740,003
77D 3,740,004
122AD 3,740,005
129D 3,740,006
137P 3,740,007
153R 3,740,008
3,740,009
155A 3,740,010

CLASS 246

3 3,740,548
122 3,740,549
125 3,740,550

CLASS 248

183 3,740,011
201 3,740,012
224 3,740,013
373 3,740,014
445 3,740,015
488 3,740,016

CLASS 250

41.9DS 3,740,553
41.9ME 3,740,551
41.9SE 3,740,552
3,740,554
43.5R 3,740,555
66 3,740,556
100T 3,740,558
106R 3,740,557
199 3,740,559
3,740,560
201 3,740,561
219DF 3,740,562
222R 3,740,563

CLASS 251

5 3,740,017
94 3,740,018
129 3,740,019

CLASS 252

48.6 3,740,333
62.1 3,740,334
62.59 3,740,335
70 3,740,336
72 3,740,337
77 3,740,338
135 3,740,339
301 3,740,340
301.2W 3,740,341
301.65 3,740,342
308 3,740,343
311S 3,740,344
355 3,740,345
384 3,740,346
455Z 3,740,347
466J 3,740,349
512 3,740,350
547 3,740,351
548 3,740,352

CLASS 254

134 3,740,020
186R 3,740,021

CLASS 256

24 3,740,022
3,740,023
51 3,740,024

CLASS 259

7 3,740,025
18 Re.27,681
67 3,740,026
69 3,740,027
72 3,740,028

CLASS 260

2.5FP 3,740,355
2.5B 3,740,356
3,740,359
2.5F 3,740,358
2.5H 3,740,354
2.5L 3,740,357
2.5N 3,740,353

17.4GC 3,740,362
17.4ST 3,740,360
3,740,361
22A 3,740,364
3,740,365
29.6M 3,740,366
29.67A 3,740,367
29.7M 3,740,201
29.7R 3,740,368
30.4R 3,740,369
31.8U 3,740,370
32.6A 3,740,414
40R 3,740,371
3,740,372
40 3,740,047
47CP 3,740,374
47EC 3,740,373
47XA Re.27,682
61 3,740,375
73R 3,740,376
75NC 3,740,377
78UA 3,740,378
78S 3,740,380
78.001 3,740,379
80.78 3,740,381
82.1 3,740,382
88.2 3,740,383
94.9C 3,740,384
112.5 3,740,385
3,740,386
132 3,740,387
209R 3,740,388
209 3,740,389
210.5 3,740,390
233.3R 3,740,391
239.55D 3,740,392
240D 3,740,393
243AC 3,740,395
243R 3,740,394
3,740,396
247.2A 3,740,398
247.7C 3,740,397
249.8 3,740,399
250R 3,740,400
254 3,740,401
256.5R 3,740,402
279R 3,740,403
293.53 3,740,405
293.54 3,740,408
293.61 3,740,404
293.67 3,740,406
3,740,407
294.8E 3,740,409
295Q 3,740,411
295S 3,740,410
309.2 3,740,413
309.6 3,740,412
3,740,417
309.7 3,740,416
326HL 3,740,415
453AL 3,740,348

CLASS 261

23A 3,740,040
64 3,740,041

CLASS 264

94 Re.27,675

CLASS 266

9 3,740,042
30R 3,740,043
36H 3,740,044

CLASS 269

3 3,740,046
59 3,740,048
162 3,740,045

CLASS 270

41 3,740,049
58 3,740,050

CLASS 271

11 3,740,029
35 3,740,030
3,740,031

CLASS 272

31B 3,740,032
79R 3,740,033

CLASS 273

68 3,740,034
96R 3,740,035
128A 3,740,036
134AD 3,740,038
134AF 3,740,037
161 3,740,039
183E 3,740,051
189R 3,740,052
194B 3,740,053
197A 3,740,054

CLASS 274

9RA 3,740,055
9B 3,740,056

CLASS 277

3 3,740,057
15 3,740,058
38 3,740,059
80 3,740,060
178 3,740,061
235B 3,740,062

CLASS 279

16 3,740,063

CLASS 280

11.35T 3,740,064
19 3,740,065
32.5 3,740,066
33.99 Re.27,683
43.24 3,740,067
87A 3,740,068
104.5R 3,740,069
3,740,070
124R 3,740,071
164A 3,740,072
179A 3,740,073
402 3,740,074
415B 3,740,075
432 3,740,076
475 3,740,077
478R 3,740,078
480 3,740,079
481 3,740,080

CLASS 283

6 3,740,081

CLASS 285

342 3,740,082

CLASS 287

20.3 3,740,083
20.927 3,740,084
52.08 3,740,085

CLASS 290

38 3,740,564
55 3,740,565

CLASS 294

19R 3,740,086
74 3,740,087

CLASS 296

23C 3,740,088
28A 3,740,089
35R 3,740,090
68 3,740,091
105 3,740,092
146 3,740,093

CLASS 297

385 3,740,094
454 3,740,095
459 3,740,096

CLASS 298

1A 3,740,097

CLASS 299

8 3,740,098
39 3,740,099

CLASS 301

121 3,740,100

CLASS 303

6C 3,740,101
13 3,740,102
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PLANT PATENTS

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Robert Gottschalk, Commissioner